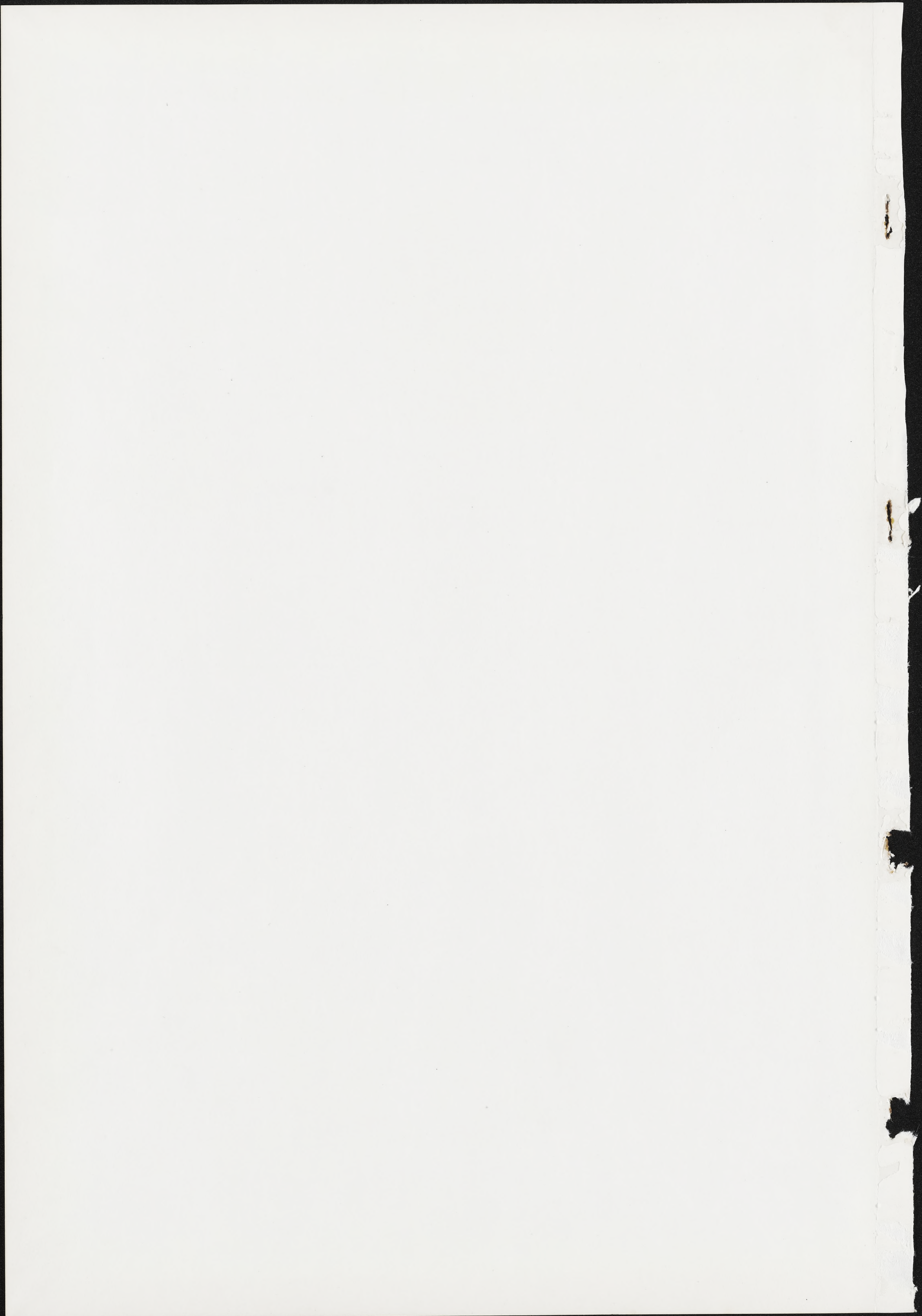


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NORTHROP NEWS

ELECTRO-MECHANICAL DIVISION

Northrop Corporation, Beverly Hills, California

Vol. 27, No. 1

January 29, 1969

Management Assignments Announced

The structure and key personnel of the newly created Northrop Electro-Mechanical Division was announced by Frank W. Lynch, Corporate vice president and general manager of the new organization.

The Financial Management Department will have R. L. Gibney as manager. Reporting to him will be: Controller, R. S. Taylor; Contracts, R. D. Philbrick, chief; Cost Estimating, G. M. Stalker, chief; Accounting, J. S. Penrod, director, who will also provide support services to Northrop Electronics Division.

E. J. Noonan will be director, Industrial Relations. Under his jurisdiction will be Personnel, R. L. Stuffer, chief; Employee Relations, K. G. Terry, supervisor; Security, E. T. Jessick, chief; and Compensation and Development, G. F. Wajda, chief.

Marketing and Planning will be under the direction of B. H. Ervin, manager.

The Operating Elements will include:

(See STAFF, page 6)

NEWS INTRODUCES A NEW EDITION

The Electro-Mechanical Division edition of the Northrop News makes its debut on this page. Prepared expressly for Electro-Mechanical Division personnel, it replaces the former Nortronics edition of the News.

Ivy G. Edmonds will serve as editor of the Electro-Mechanical edition, reporting to Bryan Weickersheimer, News editor-in-chief. He may be reached at ext. 433, Anaheim, or ext. 4273, Hawthorne.

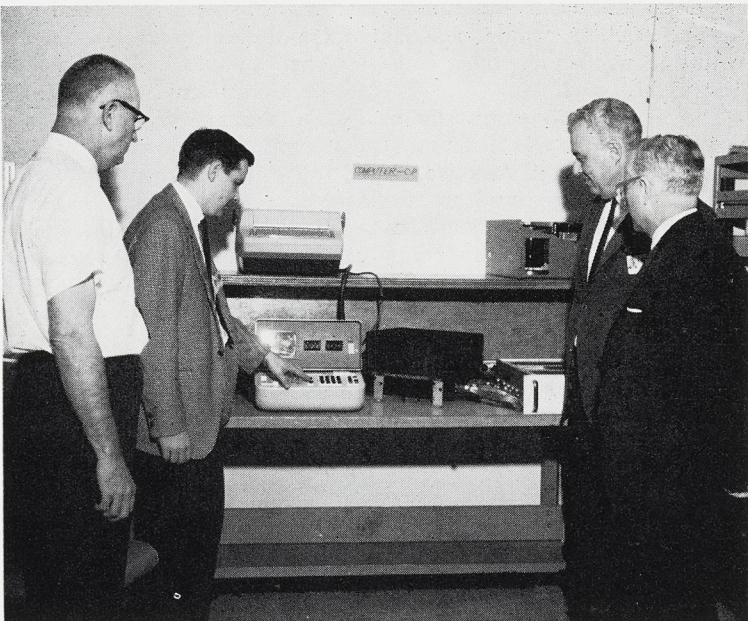
News tips, classified ads and personal items may continue to be routed to the News office, mail zone 170/62.

Initial Poseidon MTRE Efforts Now Complete

The Electro-Mechanical Division's Production and Support group, Anaheim, is completing work on the initial phase of a program to provide Missile Test and Readiness Equipment (MTRE) for the United States Navy's Poseidon missile.

Work on the next phase, the Operation Systems Development Program (OSDP), which includes the production and final testing of tactical systems, is already well under way, according to M. A. Seeley, group chief.

This program began in 1966 as an incentive-type subcontract from Lockheed Missile and Space Company. Since then Nortronics has built over 20 pieces of equipment, including complete systems, major modification kits, system testers and related in-process test equipment. By meeting delivery schedules, maintaining the



COMPUTER TRANSFER—Representatives of the Electronics Division Department at Hawthorne and Electro-Mechanical Anaheim (from the left) John Gillings, Neil Oman, Roy Gaston and Bill Nicholson, view the NDC 1070 computer delivered recently to Anaheim.

Advanced 1070 Computer Acquired for TEAMS Work

The Electronics Navigation Department has delivered a model of the most advanced airborne military computer, the NDC 1070, to Electro-Mechanical's Anaheim Department for use in the development of its NAS 2070 series on-line monitoring systems.

The NDC 1070 was developed by the Computer Laboratory headed by Roy Gaston. Lou Colombano, chief, Computer Development, was responsible for the development. Neil Oman was project engineer for the model delivered to Anaheim.

The NAS 2070 series is the second generation of on-line monitoring systems under development by Automation Systems at Anaheim. Development responsibility is under Bill Nicholson, chief, Research and Development. Project engineer is John Gillings.

The 1070 employs advanced microelectronic devices and design techniques which provide significant performance improvement and cost reduction over contemporary designs.

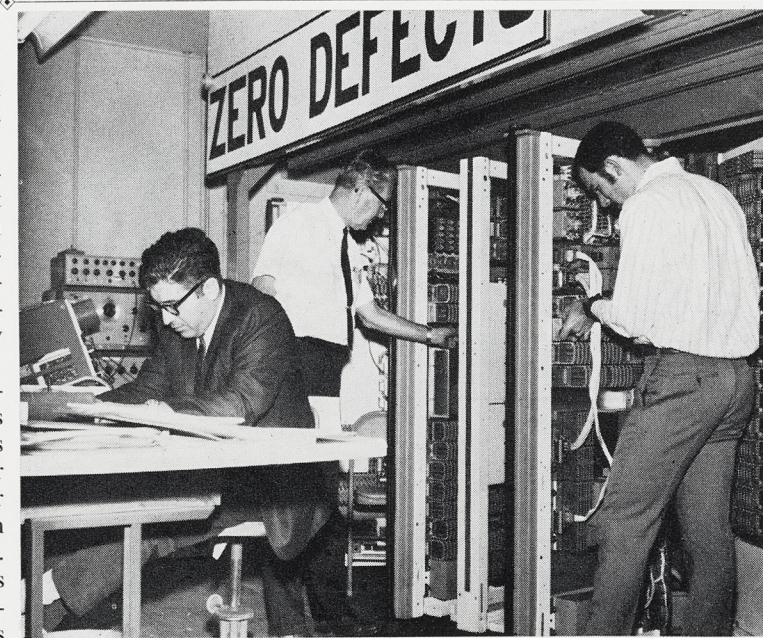
The NDC 1070 computer is also being used as the processing unit in the airborne Omega navigation system being developed under contract to the U.S. Navy.

It is a conductively cooled design which requires no cooling air in operations over a temperature range of -55°C to $+70^{\circ}\text{C}$. It features a high throughput computational rate through the incorporation of direct memory access, fast access register, roll table operation, program and external interrupts, and fast multi-shift unit.

The computer weighs 35 pounds in a volume of 0.6 cubic-foot and requires 200 watts of input power.

The model delivered was manufactured by the Navigation Department and delivery to Anaheim was made December 20, 1968. Application of the NDC 1070 to the NAS 2070 series was arranged through the cooperation of Dan Chung, director of Engineering, Anaheim Department, and Al Taie, director of Engineering, Navigation Department.

The NAS 2070 series includes computer controlled on-line monitoring systems for shipboard use.



PRETESTING THE MARK VII MTRE are, from left, Anthony Cassise, W. S. Middleton and Robbin Marty.

NEW DIVISION

Lynch Explains Changes

Editor's note: On February 1 the Nortronics Division will divide to form two new organizations within the Northrop Corporation family. They are the Electronics Division and the Electro-Mechanical Division. Changes of this kind naturally bring up a number of questions, including the very personal one, "How does this affect me?" To provide an authoritative answer to such questions, Northrop News went to the man best in a position to know. He is Frank W. Lynch who will head the new Electro-Mechanical Division. Here are Mr. Lynch's replies:

Q. First of all, Mr. Lynch, what are the changes?

A. Stated most simply, we are dividing the Nortronics Division into two new working organizations. The Electronics Division, with headquarters at Palos Verdes, will be under Ross Miller. The Electro-Mechanical Division, which I have the privilege of heading, will have its office here at Anaheim.

Q. Why was this done?

A. Northrop is a growing company. As Mr. Jones, our company president, stated in his annual report to shareholders, Northrop has completed its third successive year of new highs in earnings and sales. When a company grows this way, management must grow with it. This is nothing new to us here at Northrop. Those of you who have been with us for a long time will recall that the



Mr. Lynch

same thing happened in 1957. At that time the Norair Division was divided to create Nortronics. Now still more company expansion and diversification has brought about a division of Nortronics into the Electronics Division and the Electro-Mechanical Division. Put it this way, we are still growing up.

Q. What direct effect will this have upon the individual employee of the new divisions?

A. The main effect is that creation of the two new divisions opens the way for expansion and new individual opportunities. Outwardly, little change will be visible. There are no plans for additional facilities or for major moves of personnel. Some sections will not move from their present locations even though they will be functionally changed to another division. In such cases where joint use of facilities are required, we are working out a host-tenant agreement. The tenant will receive basic services from the host. This plan will eliminate any necessity for major shifting of personnel.

Q. How will Nortronics' present activities be split between the two new divisions?

A. The new Northrop Electronics Division will have the present Navigation Department, the Precision Products Department, the Navigation and Guidance elements of the Needham Department, and portions of the Northrop Systems Laboratories. Here in the Electro-Mechanical Division we will take over Nortronics Anaheim, Ordnance activities of the Needham Department, Northrop Support Operations, portions of the Northrop Systems Laboratories and Northrop Carolina, Inc.

Q. What about the product areas themselves? Which will each division be responsible for?

A. Under the Electro-Mechanical Division we will have Automation Systems, Electro-Optical, Ordnance, Tactical Systems, Ocean Systems, Fabricated Products and Textile Machinery, Support Operations, Chemical and Propulsion. The

(See CHANGE, page 6)

\$450 Million 747 Contract Sets Record

Officials of The Boeing Company and Northrop Corporation have signed the largest contract in history for commercial airframe assemblies—a \$450 million order—for work being done by Northrop on the giant Boeing 747 jetliner program.

The contract calls for the design and production of fuselage assemblies for 201 Boeing 747 aircraft, the world's largest commercial jetliner. Work on the program is in progress at Northrop.

Malcolm T. Stamper, Boeing vice president and manager of the Everett, Washington, branch, and F.W. Lloyd, vice president

(See 747, page 6)

NORTHROP NEWSMAKERS

Marshall Thompson, Norair, has discussed "Northrop Job Opportunities" and presented a film highlighting Northrop products at the January Open House of the Willowbrook Young Adult Center, Compton.

Lee Ohlinger, Northrop Data Processing, compared high-speed computers with "nature's computer, the brain," at the January meeting of the Airborne Chapter, National Secretaries Association held in Inglewood.

E. A. Lauchner, Norair, has prepared an article on "The Importance of Precipitation Harden-

ing in Engineering Alloys" for publication in Materials Engineering.

Rex B. Fairless, Ventura, has been appointed to the Ventura County Board of Education. He is a former chairman of the Ventura County Industry-Education Council.

M. A. Maurer, Ventura, has submitted a paper to the American Society of Tool and Manufacturing Engineers for distribution at the Western Technical Engineering Conference (WESTEC) in Los Angeles, March 11. The paper is entitled "Factory Management For The Future."

House Minority Leader Ford Set to Speak at WINCON

Representative Gerald R. Ford, House minority leader, will be the keynote speaker at the banquet during the Winter Convention on Aerospace and Electronics Systems (WINCON) at the Biltmore Hotel, February 13.

WINCON is sponsored by the Institute of Electrical and Electronic Engineers (IEEE). It brings to the West Coast more than 3,000 technical and managerial leaders from industry, government and scientific circles to dis-

cuss current and future trends significant to national policy.

This year's three-day technical program draws on the theme, "Our Changing World." It opens with a major talk by Dr. Simon Ramo, vice chairman of the board, TRW, Inc., according to Frederick Stevens, WINCON general chairman. Mr. Stevens is vice president of Diversification, Northrop Corporation.

Representative Ford will address the black-tie dinner, expected to be attended by more than 600, on the topic of "The Changing Political World."

WINCON will stress such topics as air traffic control, communications policy, intersection of medicine and electronics, impact of component research on systems, and avionics systems for future military aircraft.

Information on the technical program and banquet may be obtained from Lloyd Jensen, assistant director, Marketing, ext. 564, Palos Verdes.

Help Sought In Locating Ex-Employees

Northrop Corporation's Retirement Administration office is again seeking a group of former Northrop employees to advise them of possible benefits available to them through the Northrop Retirement Plan.

Present employees knowing the whereabouts of any of these individuals are asked to have them contact ext. 302 at Century City.

Sought are Charles L. Allen, J. G. Brooks, Harold L. Jones, John M. Lynn, David L. Mattix, jr., Harry Manning, H. S. Adams, Adren J. Allison, W. Armstrong, Lois M. Averill, Eva W. Baldwin, John E. Barnes, Hontas W. Beeler.

Kathleen P. Billings, George S. Biermann, Roy L. Bisbee, Karl S. Bohn, jr., Lawrence M. Boynton, Edgar W. Crow, Vincent Bruscia, F. E. Burford, Wray Burgett, Philip E. Burke, Martie Brownlee, Marion A. Carson, Violet M. Cleland, Nick Close, Lawrence L. Cole, Susan E. Cox, Bryon R. Crary, Edgar H. Crouch and Carroll G. Curry.

HALLICRAFTERS FORMS NEW CLUB

Supervisory personnel at a Northrop Corporation subsidiary, the Hallcrafters Company, have completed organization of a new Management Club which boasts membership of 85 per cent of all eligible.

Bob Mueller, president; Fritz Franke, vice president; Jim Byrne, treasurer; Elain Spencer, secretary; and Joe Kerwin, sergeant-at-arms, were elected to head the new group.

Communications Seminar Includes Northrop Men

Four Northrop personnel will be panelists at the Second Annual Technical Communications Seminar at California State College, Fullerton, on February 15.

They are Dr. George Mills, Northrop Corporate Laboratories, on the Materials and Process panel; and on The Editorial and Publications Management Stem panel, Earle Keathley, panel chairman, Frank Anton and C. L. Locke, panelists. All three are from the Electro-Mechanical Division, Anaheim.

In addition to the panelists, Bruce Dieter of Norair is the chairman of the Speakers Committee for keynote, luncheon and dinner speakers. He was general chairman of last year's seminar.

THEATRE PARTY

Julie Andrews as the "Star" is the feature of the first Northrop Theatre Special of 1969, scheduled the evening of February 16, at the Fox Wilshire in Beverly Hills.

Regular \$3.50 tickets are available through all NRC ticket outlets at \$2.80 each; \$3 tickets at \$2.40 each. Show time is 8 p.m.

Northrop Subsidiary World's Top Builder of Satellite Stations

Northrop Page Communications Engineers has built more commercial satellite communications earth stations than any other company in the world.

The Page-built earth station completed recently in Panama is the first in Central America. It was designed, engineered and installed by Page for Intercontinental de Comunicaciones por Satelites. The first satellite traffic linked Chile, Europe and the United States.

Page also has designed and constructed many transportable earth stations—in Thailand for RCA Communications, in Aus-

tralia for Overseas Telecommunications Commission, and in Maine, Hawaii and Washington for the Communications Satellite Corporation (Comsat).

The Comsat Washington station was dismantled and airlifted to the Philippines for reinstallation and operation by Page on behalf of Comsat for the Philippines Overseas Telecommunications Corporation.

Page also designed and engineered a high capacity earth station for Empresa Brasileira de Telecomunicacoes in Brazil as well as engineering services and procurement specifications for an

electronic subsystem for the Fucino (Societa Telespazio, Italy) station.

Iran and Lebanon have also contracted Page to design, engineer, furnish and install earth stations. Iran will have the first earth station in the Middle East.

Earth stations link widely separated communication centers via satellites, providing instant international links.

Continuing research and development by Page gives each earth station the benefit of the latest technological improvements. Page also conducts studies to determine feasible locations for stations.



SOUTHEAST ASIA AT A GLANCE — A coolie, a pagoda and a water buffalo, Asia's traditional beast of burden, form a fitting framework for a Northrop Page Communications Engineers earth station for satellite com-

munications at Bangkok, Thailand. Station is typical of many installed around the world by Northrop Page, the world's most experienced developer of satellite communications earth stations.

FROM NASA

Astrodynamics Team Garners Accolades

Six members of the Astrodynamics section of Electro-Mechanical Division's Huntsville, Alabama, facility have been commended for their contributions to the highly successful Apollo 8 lunar mission.

Northrop's Jack Bradford, Ray

Maples, Jim Reaves, Larry Lawler, Bob Miller and Tom King received the praise.

It came in the form of letters from Gerald Wittenstein, chief of the Trajectory section of the NASA Marshall Space Flight Center's Aero-Astrodynamic

Laboratory, Flight Test Analysis Division, and J. P. Lindberg, the division director.

The Northrop team helped provide real-time trajectory analysis support for the mission by special request from NASA's Manned Spacecraft Center, Houston.

Data supplied included such decisions as a go/no go recommendation for the translunar injection burn, information involving start and stop and fuel consumption in the second burn of the S-1VB stage and other information. Part of the data was used by the Apollo 8 crew in monitoring the performance of the S-1VB stage during the burn period.

Plans call for this team to continue to provide similar support for the remaining missions in the Apollo lunar landing program.

GOLF TOURNEY

The NRC Golf Club February Tournament is scheduled to get under way at 8 a.m., February 8, at the Fallbrook Country Club. Entries are limited to 90 players. Green fees (including prize fund) are \$6. Registration can be made at the Personnel Activities office.

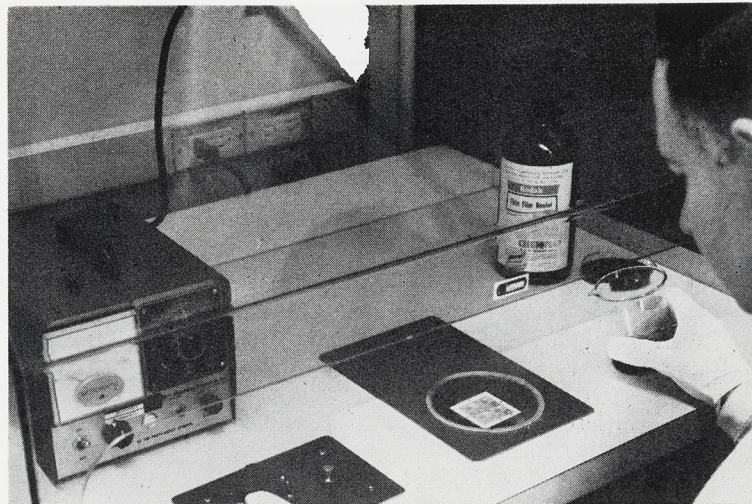


COMMENDED BY NASA officials for their work in providing real-time trajectory analysis support for the Apollo 8 lunar mission was the Northrop team from Electro-Mechanical Division. They are Jack Bradford, Ray Maples, Jim Reaves, Larry Lawler, Bob Miller and Tom King.

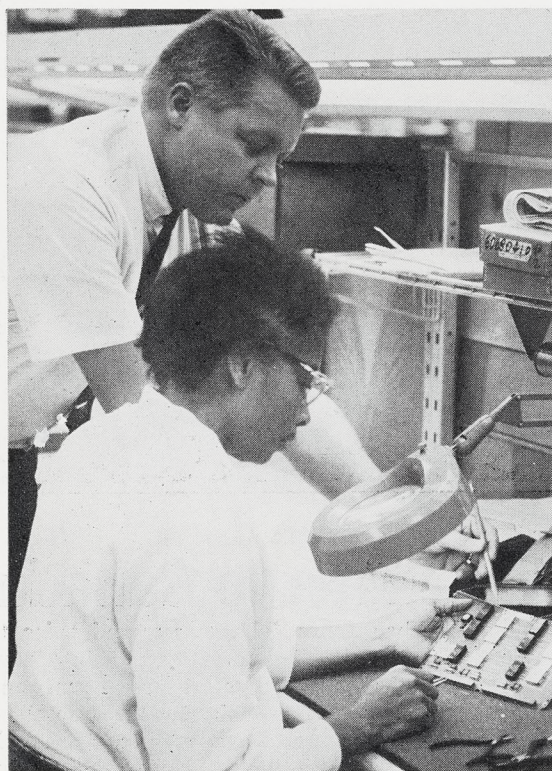


ANNE McINTYRE, left, skilled in topology, reduces engineering specifications to hybrid format for reduction to final printed circuit design.

PRINTED CIRCUIT, right, is reduced by photo-lithography to final miniature size. Andre Despres uses special equipment to achieve line width and spacing to get maximum packing density in the hybrid package.



LEE BENTON, seated above, and Andre Despres discuss location of interconnecting wires. Hybrid circuits contain as many as 700 lead wires in each package. Below, Supervisor Mel Peck discusses computer card buildup assembly with Beatrice Ford.



Extreme Care Goes Into Building 1070 Computers

Newest contribution to the computer field is the NDC 1070, built in Hawthorne by the Electronics Division's Navigation department.

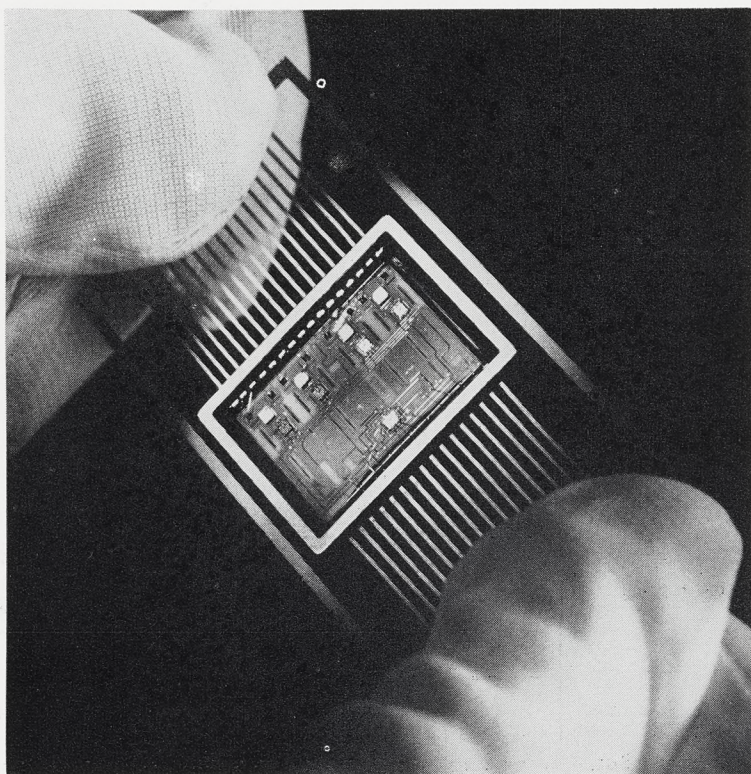
A version of the computer is used in the airborne Omega navigation system that the department is currently producing under contract to the U.S. Navy.

The computer capability was developed to support the navigation systems currently designed and built in the Navigation department. Northrop is now one of

the largest special purpose computer producers in the United States.

All forms of avionics utilize computers within a system. However, the main objective here is to solve the high speed computations required for navigation equipment used for aircraft and missile flight.

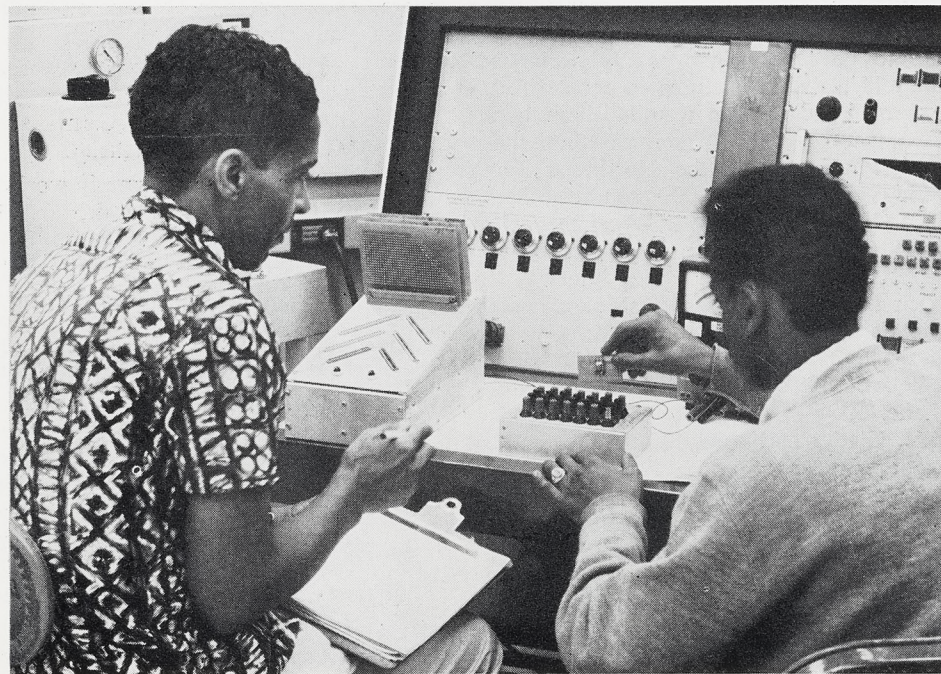
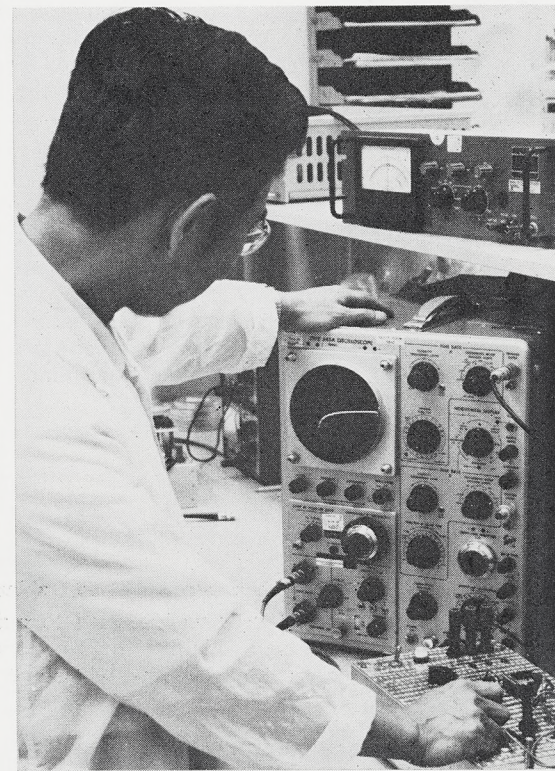
These photographs show the detailed operations and meticulous care used in building the miniaturized components of these vital navigation aids.



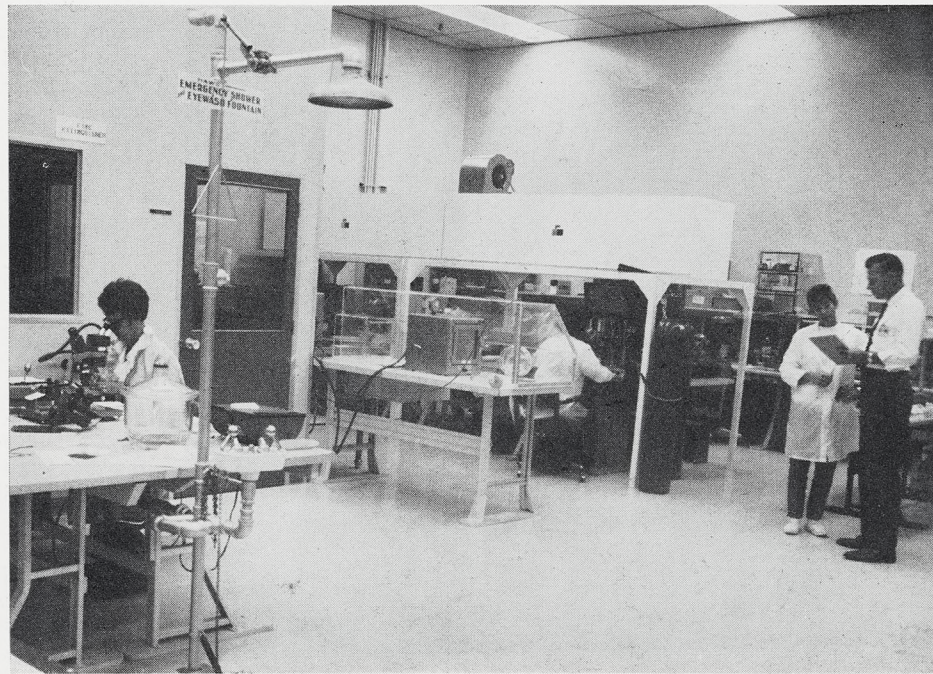
THIS QUAD SENSE AMPLIFIER, above, used in the 1070 computer and the airborne Omega, measures only $\frac{3}{4}$ " by 1" by .050", but contains eight diodes, four dual voltage comparators, a four-channel gate, four capacitors, and 20 resistors.



HELEN BOYD, above, checks each unit before sealing to insure integrity of bonds, dice placement and cleanliness. Below, John Iwatsuru makes another 100 per cent test of all units before shipping to insure highest possible reliability.



COMPONENTS UNDERGO rigid tests by Frank Campbell and Joe Watson. Such checks insure that all discrepancies are eliminated before the units are certified for delivery.



THE MICROELECTRONICS LAB contributes to reliability. At right are Gayle Ashton and Supervisor Pete Anderson. At left is Helen Boyd with Anita Smith in background.

WHAT DO YOU THINK?

How Are You Doing So Far With Your New Year's Resolutions

Ron Howard, general worker, Electro-Mechanical Division:

Well, I'm doing okay so far. However, since I never did very well in previous years, I'm not going to start bragging this early. There's a lot of the year left to go.



Mr. Howard



Mrs. Thomas

Margaret Thomas, programmer, Northrop Data Processing:

I'm batting .500. After Thanksgiving, Christmas and all the goodies sold for our adopted family, I resolved to trim down, lose a little weight. I also resolved to enroll in night school and take some courses to improve myself. I started school last week.

Rick Tam, Parolab, Ventura:

I didn't make any this year and can't remember that I ever have. They aren't any fun. If I did make any, I'm sure I quickly broke them all. I never have been very good about things like that.



Mr. Tam



Mrs. Correa

Teresa Correa, electronic assembler, Electronics Division:

I was careful to only make one resolution for this new year, because I really want to keep this one. I resolved to be a little more patient with my children and husband. And I've kept it. I just wish they had made the same resolution.

Joe Spillane, tool cutter and grinder, Norair:

So far, so good. My resolution was to go to the gym two or three nights a week to work out, something I had done before, but discontinued. My first two weeks of the new year have been successful. I've lost more than five pounds and feel much better.



Mr. Spillane



Mrs. Green

Flo Green, structural assembler, Ventura:

Not very well. I tried to quit smoking. But, I've been smoking for 30 years and I'm afraid I just don't have the will power.

40-ACRE SPREAD
Hanchett Family—Modern-Day Pioneers

The old fashioned pioneers haven't all faded into history. There is still Ted Hanchett and his family.

Ten years ago, Ted, supervisor of Aerospace Ground Equipment Requirements and Integration at Norair, bought 40 brush covered acres in the mountains 30 miles east of Temecula in Riverside County. Scorning the modern purchase of a house, the family set out to build their own.

Ten years of labor has resulted in the Circle H Ranch with a modern house, grand rumpus room, spacious landscaped grounds, and even a travel trailer park attached to accommodate vacationers.

In doing so Ted had to move a creek bed, invent machinery to hook to his tractor to clear land,

and to swing a pick to build a road.

Then there were hours of sawing to cut telephone poles for use as fence posts, drilling through rock to make a well, and pondering the problem of fixing a flat tire on a pickup loaded with a ton of rock.

And then there was Nibbles, the ground squirrel the children made a pet of. He fell through a vent and had to gnaw a hole in the ceiling to get out. Then he got loose in the house and ate holes in the window shades.

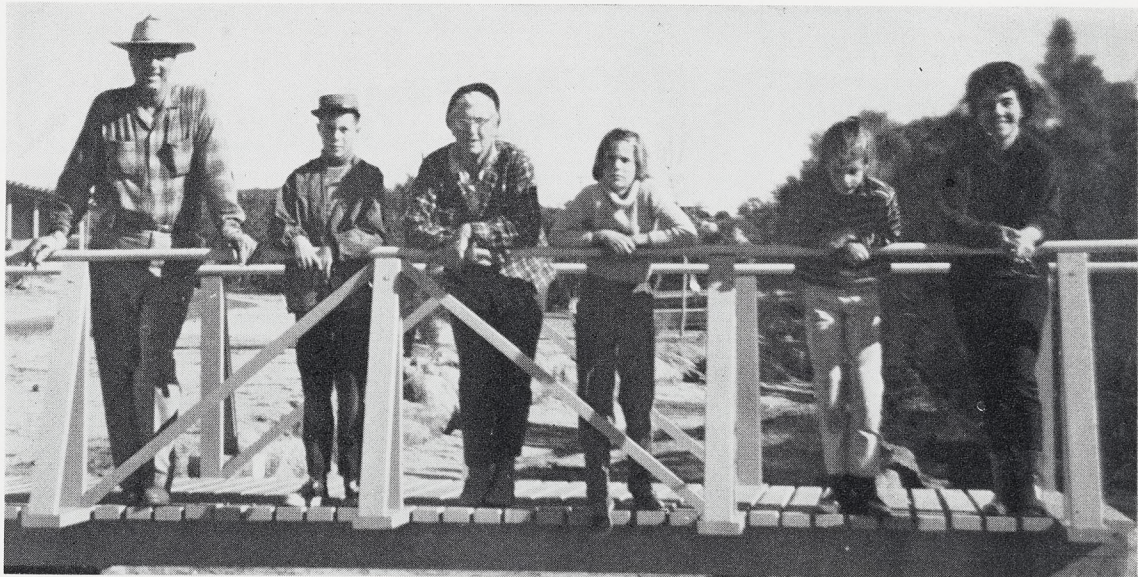
Although the problems were enough to break the spirit of the most devoted pioneer, Ted claims there was enough fun to offset them. For example, when he was clearing land — a backbreaking

job, they fired the piles of brush at night. Then they all gathered about the big bonfires to toast marshmallows and wieners.

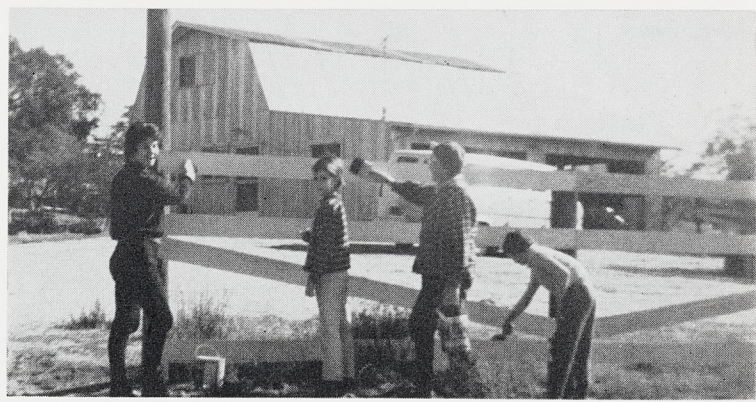
Once the land was cleared, he ran into trouble with rock at the building sites and had to start over in new locations. Then there were continual headaches meeting county and state regulations.

But the work progressed. Only the septic tank, some concrete block work and part of the rough plumbing had to be contracted. The rest was all done by Ted and his family—except what he could squeeze out of his occasional weekend visitors.

Working with him were his wife Florence, son Kris 12, twin daughters Susan and Holly 10, and his mother Ilda.



TED HANCHETT, son Kris, mother Ilda, twins Susan and Holly and wife Florence, stand on bridge spanning creek bed they relocated on a 40-acre spread the family has developed near Temecula. At right is a typical work party in progress. Work on project has spanned 10-year period.



NRC LAKE

Johnsons Take Familiar Name to Canada

The Northrop Rock Club has a lake named in its honor in the Northwest Territory of Canada, courtesy of club members Dave and Gladys Johnson.

Dave Johnson picked the remote town of Yellowknife at random from a map.

"I think I'd like to go rock-hounding there," he told his wife. "Sounds good to me," she replied.

Dave and Gladys left in a truck and trailer, traveling north to Canada's Mackenzie Highway, "mile zero post," at Grimshaw, Alberta. At this point they wrapped the front of their trailer with cardboard to protect it from flying rocks through the 642 miles of gravel road to Yellowknife on the Great Slave Lake.

From Yellowknife, Gladys and Dave chartered a float plane flown by a bush pilot to fly farther

north into the wilderness. They stayed completely isolated in an abandoned uranium mine located approximately 100 miles south of the Arctic Circle.

The only inhabitants are grizzly and black bear, wolves, moose, small game, insects and fish so big Mrs. Johnson had to take pictures so people back at Northrop would believe her.

There are thousands of lakes in the Northwest Territory's 1,300,000 square miles. Few are named. When they chartered the plane, they decided to pick one with a nice island.

The bush pilot landed the float plane and Mr. Johnson sprayed the letters "NRC" with fluorescent paint on a pegmatite dike. The location of NRC Lake is longitude 113 58' W. and latitude 62 39' N. The lake can be visited by contacting the airline in Yellowknife and giving these coordinates.

The ideal time for a visit, according to Gladys and Dave, is July and August. From Norair Hawthorne to Yellowknife is 2,740 miles. The area, from a rockhound's view, is especially rich in crystals and gemstones.

Since their initial trip, the

Johnsons have returned twice to the Territory. Lately they have been guests at other gem and mineral clubs in the Southland where Dave lectures on their travels in the North and Gladys shows exhibits of gems and minerals they found.

Their latest appearance was at the January 6 meeting of the Electro-Mechanical Gem and Mineral Club in Anaheim.

Dave Johnson formerly worked in Maintenance, Norair, and is now a lab technician with TRW. Gladys Johnson works in Quality Engineering, Norair Hawthorne.

TIME FOR CHANGES
IN SAVINGS PLANS

Eligible Northrop personnel may enroll, change deduction amounts or contribution options for Northrop Savings Plans now. The effective date is February 2, with requests for changes due February 1.

Application cards for changes are available through Industrial Relations and Personnel offices throughout Northrop.

NRC LAKE — Dave and Gladys Johnson selected an unnamed Canadian lake and dubbed it NRC. Mrs. Johnson, left, shows off beautiful fish catch made at the lake. Area is accessible only by float-equipped aircraft.

Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

Ford, 1956, 6 cyl., auto. trans., r/h, 4-dr., \$100. 213-674-3843. A

Dodge, 1958, auto. trans., r/h, p/b, p/s, 4-dr., Custom Royal, \$150. 213-345-4031. A

Alfa-Romeo, 1960, 1300 Series, \$475. 213-378-4155. A

Volkswagen, 1967 Fastback, AM-FM radio, \$1,695. 213-323-8089. A

Pickup Truck, 1956 Chev., sleeper, ice box, '67 bed, \$650. 213-327-5376. A

Oldsmobile, 1963 2-dr. h/top, r/h, p/s, p/b, \$850. 213-430-2094. A

Dune Buggy, rebilt. 1960 Renault eng., 3-spd. trans., extras, \$700. 213-325-1813, 213-326-5965. A

Corvair, 1961 Monza, 4-dr., r/h, auto. trans., \$200. 213-534-2419. A

Van, 1964 Ford Travelwagon, a/c, pop top, many extras, \$1,775. 213-645-1489. A

Ford, 1963 Galaxie XL 4-dr., \$650. 213-378-3600. A

Camper, 1967 Volkswagen, Sundial Delux, \$2,400. 213-644-7870. A

Campmobile, 1968 Volkswagen, w/pop top, 7,000 miles, \$3,100. 213-372-9871. A

Volkswagen, 1965, Sunroof, 34,000 miles, \$1,150. 213-373-1262. A

Station Wagon, 1964 Ford Country Squire, a/c, p/s, p/b, r/h, \$1,100. 213-830-3777. A

Rambler, 1963 Classic, 6-cyl., stick shift, 4-dr., \$325. 213-833-5594. A

Mustang, 1966, h/top, 289 V-8, stick, 3-spd., \$1,475. 213-372-8196. A

Ford, 1929 Model A, sport cpe. w/rumble seat, completely restored, \$1,800. 213-326-8976. A

Volkswagen, 1966 Squareback Sunroof, AM-FM radio, fact. air, \$1,000. 213-671-0813. A

International Scout, 1964, 4-whl. drive w/power take-off, \$1,100. 213-370-0970. A

Ford, 1960 2-dr. Starliner, \$125. 213-326-6142. A

Camaro, 1967 S.S. 350, 4-spd., \$2,400. 213-371-0194. A

Chevrolet, 1963 S.S., new paint, \$750. 213-372-5694. A

Chevelle, 1965 2-dr. h/top, r/h, p/s, \$1,600. 213-371-0323. A

Chevrolet, 1964 Impala S.S., V-8, r/h, p/s, \$1,000. 714-635-9068. A

Rambler, 1967 American, \$1,475. 213-324-8758. A

Buick, 1963 Riviera, a/c, full power, \$1,050. 213-370-9170, 213-672-1868. A

Chevrolet, 1964 4-dr. h/top, \$800. 213-894-1381. A

Buick, 1965 Riviera GS, full power w/air, \$2,500. 213-370-2991. A

Datsun, 1967 Sports Model, \$1,700. 213-379-8090. A

Volkswagen, 1966 Deluxe 117, mod. 1300, FM-AM radio, sunroof, \$1,395. 213-628-3416. A

Dodge, 1959, \$150. 714-633-1706. A

Ford, 1961 Fairlane, 2-dr., 6-cyl., 56,000 miles, \$375. 213-327-3160. A

Pontiac, 1963 LeMans, 2-dr. h/top, 326 V-8, stick, \$700. 213-861-1529. A

Buick, 1967 Riviera, full power, fact. air, AM-FM stereo radio, \$3,850. 213-675-4752. A

Mustang, 1965, 289 V-8, 4-spd., \$1,275. 213-674-3264. A

Mercedes Benz, 1968, 250 S.E., 4-dr., p/s, p/b, auto. trans., a/c, \$5,950. 213-596-6145. A

Volkswagen, 1966, radio, extras, \$1,345. 714-897-9490. A

Station Wagon, 1964 Dodge 330, r/h, p/s, p/b, \$900. 213-377-3563. A

Cadillac, 1963 convt., full power, fact. air, \$1,100. 213-322-7693. A

Volvo, 1961 sedan, needs paint, r/h, \$150. 213-679-2319. A

Cadillac, 1954, 2-dr. h/top, \$110. Box 101. A

Shelby, 1967 GT 500, auto., air, stereo, AM-FM, \$3,495. 213-374-5935. A

Oldsmobile, 1964 F85 sports cpe., Jetaway trans., console, r/h, V-6, \$795. 213-475-4471. A

Grand Prix, 1962, 421, 2 4-bbl. carbs., 4-spd. Munsey trans., many extras, \$900. 213-294-9180. A

Chevrolet, 1962 convt., p/s, \$550. 213-370-6914. A

Buick, 1958 sedan, \$95. 213-833-2512. A

Ford, 1965 Galaxie 500, 4-dr., auto., air, \$1,300. 213-370-8365. A

Morgan, 1958 2 + 2, completely refurbished, \$1,000. 213-325-0639. A

Cadillac, 1962 convt., fact. air, \$800. 213-663-3622. A

Chevrolet, 1956 Bel Air, 4-dr. sedan, V-8, auto. trans., \$175. 213-679-7734. A

Household Items For Sale

Playpen, child's, cloth mesh, \$5. 213-376-4831. B

Household Items For Sale

Stove, gas, 4-burner, \$40. 213-532-9180. B

Range, O'Keefe & Merritt, \$40. 213-672-4511. B

Stove, Wedgewood, gas, \$30. 213-532-4566. B

End Tables, 2, wrought iron, marble top, \$75. 213-328-3306. B

Wardrobe Chest, child's, white, \$20. 213-679-5506. B

Carpet, Wilton wool, w/pad, \$30. 213-474-1780. B

Sectional, large, corner-type, turquoise, \$100. 213-324-7209. B

Dining Table, maple, rectangular w/sliding ext. leaves, \$30. 213-479-5653. B

Crib, Babyline, \$20. 213-675-7938. B

Bed, baby's, \$15. 213-676-3665. B

Love Seat, maple, makes into dble. bed, yellow, white & avocado print, \$75. 213-323-5497, 213-327-2939. B

Night Stand, maple, \$10. 213-372-3827. B

Washer Dryer, Combination, G.E., 3 yrs. old, turquoise, \$95. 213-391-2040. B

Refrigerator, Servel, gas, 11 cu. ft., white, \$100. 213-378-5742. B

Bed Sets, twin, box springs, mattresses, wood bedsteads, \$85 or sell separately. 213-377-5936. B

Miscellaneous For Sale

Pistol, Astra mod. 600/43, 9 mm, holster & addl. clip, \$50. 213-785-1405. C

Bed Bunks, 2 foldup-type, springs & mattresses, for pickup camper, \$25. 213-327-8927. C

Radio, Fisher 220, & speakers in wall mount cabinet, 8 mos. old, \$250. 213-754-6690. C

Carry-All Rack for Chevrolet pickup truck, tubular reinforced steel, \$50. 213-370-7092. C

Surfboard, Bing, 9' 10", \$75. 213-541-1944. C

Motorcycle, Norton Custom, rebilt. eng., extras, \$300. 213-645-7715. C

Home, 3-bdrm., bath, lge. modern kitchen, lge. lot, \$17,750. 213-534-5350. C

Desk, maple, 3-drwr., & matching chair, \$15. 213-675-3995. C

Sailboat, 32' 6" Cutter-Rig, wood, sleeps 4, Gray marine gas eng., w/Bendix 135 radio telephone, many extras, \$6,000. 213-377-2158. C

Sailboat, racing Winard Sabot, north sail, all racing equipped, \$295. 213-376-5139. C

Engagement & Wedding Ring set, ladies', \$300. 213-326-4459, 213-326-3083. C

Relaxacizor, 4-dial model, \$75. 213-328-6662. C

Acreage, 5 acres, near Willow Springs, \$45 dn., no int., \$4,500. 213-378-1026. C

Formal, aqua blue, empire style, chiffon o/taffeta, worn once, size 7/8, \$15. 213-755-7255. C

Record Player, RCA 1967, portable, stereo, 6 spkrs. w/detachable boxes, \$75. 213-374-3376. C

Bridal Gown, size 10, imported white lace w/silk cathedral train, bouffant veil, tiara, \$75. 213-783-6632, 213-676-6390. C

Motorcycle, 1967 Yamaha, 100 cc trail master, \$325. 213-370-7130. C

Cemetery Lot, Inglewood Pk., Pleasant View sec., perpetual care paid for, \$450. 714-799-1083. C

Television, 23" b&w, 1962 Magnavox, \$45. 213-756-9528. C

Flying Club Memberships, Flyers, Inc., Hawthorne Airport, \$450 share, Bonanza, \$12 wet, Cessna Skylark, \$9.50 wet. 213-676-9103. C

Door, left, for 1957 Bel Air Chev., \$5. 213-329-9809. C

Model Airplane, radio-controlled, Tauri, incl. wheels & plans, \$9. 213-377-6193. C

Sailboat, 12 1/2' Trimaran Tri-12, 104 sq. ft. of dacron sail, 2 yrs. old, \$430. 213-372-3921. C

Dog House, Kal Kan, all alum., \$15. 213-343-6213. C

Home, 4-bdrm., family rm., wet bar, 2 f/ places, 3 baths, 4-car gar., patio, furn., \$550 mo. rent or \$75,000. 213-379-8091. C

House, 2-bdrm., den, cpts., dps., new roof, 45x150 ft. R-3 lot, heated pool w/equipment, rear Northrop, \$26,500. 213-679-4778. C

Motorcycle, 1967 Zuzuki Scrambler 6, \$495. 213-675-3884. C

Duplex, upstairs, 3-bdrm., 2 baths, f/place, 1,580 sq. ft., downstairs, 2-bdrm., 2 baths, f/place, 1,250 sq. ft., dps., cpts., 3-car gar., Ventura Keys, \$46,500. 805-495-1530. C

Airplane, Cessna 140, all metal, 270 hrs. s.m.o.h., 2 radios, \$2,350. 213-839-6084. C

Surfboard, 9' 8" Roberts, \$75. 213-324-8859. C

Mobile Home, 33' Sparton, furn., new patio awning, panel-ray heater, \$1,700. 213-676-6335. C

Camp Stove, Coleman, 2-burner, \$7. 213-679-1631. C

Bicycle, Royse Union, 26", \$15. 213-427-3085. C

Rings, wedding & engagement, interlocking, 1/4 carat, white gold, \$300. 213-679-7643. C

Wedding Gown, size 6, floor length, lace ruffles, long pointed sleeve, \$50. 213-370-9866. C

Surfboard, 8' 4", Bing, \$50. 213-374-8608. C

Bicycle, men's 3-spd., 26", \$30. 213-329-5855. C

Snow Chains, for Volkswagen, \$7.50. 213-889-0326. C

Camera, 4"x5" Graphic, 11 film holders, 2 1/4" x 3 1/4" roll back case, \$100. 213-675-0606. C

Miscellaneous For Sale

Apt, 4-plex, 2-bdrms., 2 baths, a/c, cpts., dps., washer & dryer, \$47,000. 714-633-3788. C

Auto Parts, for Model T, 1926 frame & running gear, 1912 eng., 6 whls., other items, \$350. 213-390-5687. C

Swimming Pool, Doughboy, 25' x 4', filter, access., \$225. 213-370-0990. C

Pups, reg. Dalmation, avail. on or about March 5, \$75 & up. 213-675-3882. C

Oscilloscope, T.E.C. 5", \$18. 213-426-4060. C

Motorcycle, 1968 Yamaha, 350 cc, \$700. 213-371-3171. C

Snare Drum, Gretsch, 8 lugs, w/case & stand, \$25. 213-325-3452. C

Movie Projector, Keystone, 8 mm, 750 w bulb, splicer & viewer, \$75. 213-370-4045. C

Hi-Fi, Magnavox, AM-FM, extra spkr., \$75. 714-532-6109. C

Engines, 1955 & 1956 Chevrolet V-8, w/3-spd. trans., \$100. 213-838-6075. C

Welder, Montgomery Ward, 180 amp. w/ access., \$75. 213-780-7731. C

Tape Recorder, Continental, portable transistor, mod. TP-570, extras, \$35. 213-373-3128. C

TV, 1964 23" Admiral, walnut cabinet, dual spkrs., \$40. 213-325-1535. C

Top, for TR-3, \$15. 213-325-6022, 213-325-2613. C

Drum Set, 4-piece, hi-hat & ride cymbal, \$100. 213-883-9965. C

Motorcycle, 1964 Triumph, 250 cc, \$150. 213-423-5956. C

Aquarium, 2 10-gal. tanks & equipment, \$25. 213-674-4271. C

Bellows, dble. track & focusing rail for Exakta, \$25. 213-835-3869. C

Ski Boots, Raichle, size 9D, \$20. 213-635-3127. C

Camera, Polaroid 103, \$40. 714-968-2780. C

TV, b&w, console, 23" Zenith, VHF & UHF, \$50. 213-326-0124. C

TV, 23" walnut, long lo-boy console, \$65. 213-753-6277. C

Gun, 30-30 Winchester, mod. 94, custom recoil pad, sling & case, \$85. 213-324-7442. C

Ski Boat, 17' Schiada Deep Vee, 283 Chev. eng., \$2,800. 213-545-4783. C

Guitar, elec., Fender Stratocaster w/case, \$175. 213-371-9925. C

Snowmobile, 1967 Polaris Colt 140, 300 cc Hirth eng., w/trailer, \$750. 714-838-7161. C

Airplane, 1962 Cessna 150, full panel, VHT-3, KX-150A, \$1,200 1/3 int. or \$4,495. 213-374-7760. C

Chain Saw, hvy. duty, 7 1/2 h.p., 26" rotary blade, \$150. Box 102. C

Cemetery Lot, 4 in Rose Hills Memorial Pk., \$1,400. 213-632-3586. C

Pups, Irish setter, AKC reg., 11 wks. old, \$75 & up. 714-637-3244. C

Ski Boots, men's 10 1/2-11, 5 buckles, \$25. 213-370-4475. C

Cabin Cruiser, 1965, 28' Fairliner, Chrysler 220 h.p., sleeps 4, \$6,800. Box 103. C

Mower, power, & edger, \$35. 213-376-4767. C

Organ, Thomas, mod. H3, blonde, full size keyboard & pedal, other features, \$400. 213-328-9064. C

House, 4-bdrm., bitins, enc. patio, 1 1/4 bath, in Torrance, \$44,500. 213-672-1716. C

House, 3-bdrm., lge. lot, pool, in Lakewood, fenced yd., \$26,950. 213-423-2060. C

Postiche, black, European-hair, hair length 8-10", oval base, \$10. Box 104. C

Camera, Polaroid, auto., mod. 100 w/flash & timer, \$75. 213-532-4757. C

Bicycle, \$15. 213-430-2619. C

Co-op Apt, 2-bdrm., pvt. patio, cpts., dps., free wash & dry, \$3,500 dn., \$14,500. 213-678-1649. C

Coin Collection, Liberty, Buffalo, Jefferson nickel, almost complete, mounted in Dansco coin book, \$60. Box 105. C

TV, table model, b&w, \$15. 213-324-4817. C

Boat, 14', 40 h.p. elec. motor, Gaytor trailer, \$275. 213-679-1550. C

Utility Trailer, \$40. Box 106. C

Pups, Labrador, AKC, black or yellow, \$75-\$125. 213-377-6658. C

Aircraft Radio, Narco Mark V, complete w/pwr. supply, panel unit, VOA-3 converter, CS3-A omni & cabling, \$350. 714-532-1510. C

Rifle, Remington mod. 788, in 44 magnum caliber, \$85. 213-534-0577. C

Racing Slicks, 2, Casler 9:50x14, \$40. 213-675-9500. C

Grinder, dble. wheel, on pedestal, ind. type, \$60. 213-328-8830. C

Sailboat, 15 1/2', dacron main & jib, tilt trailer, many extras, \$700. 213-323-9768. C

Radio, Craftsman AM-FM, & hi-fi amplifier, walnut cabinet, spkr. in sep. cherry walnut cabinet, & record player, \$150. 213-675-2514. C

Stereo System, incl. Heathkit preamp, tuner, amplifiers & tape playback, Jensen spkrs., other access., \$195. 714-523-2495. C

Coverage Receiver, Hallicrafters, general, mod. S-53, many extras, \$30. 213-672-6919. C

Wanted to Buy

Amplifier, used, 10 to 25 amp, for monaural phono & radio. 213-377-5700. D

File Cabinet, 4 or 5 drwr., under \$25. 714-737-2311. D

Dodge, 1967 or '68 Coronet 400 or 500, 8-cyl., reasonable price, car must be in good condition. 213-397-3504. D

Wanted to Buy

Shotgun, .410. 213-329-9021. D

Dresser, 9-drwr., reasonable. 213-320-6685. D

Corvette, 1964 or '65, convt., 4-spd., any condition. 213-693-1367. D

Jeep, 4-wheel drive, in good condition. 213-370-7749. D

Archery Bow, 30 lb. pull. 213-371-6328. D

Cabin, Lake Arrowhead or Big Bear Lake area. 213-925-7760. D

Coins, barber halves, will pay 90¢ ea., barber quarters, 39¢ ea. other coins wanted. 805-482-3893. D

Riding Boots, English, size 6 1/2-7. Box 107. D

Stroller, w/removable 2nd seat & high chair or feeding table. 213-541-1423. D

Desk, metal, 30" x 60", must be reasonable & in good condition. 213-375-5760. D

Guitar, 12-string, not elec. or ukulele, with or w/out cases. 213-374-4953. D

Free (To Be Given Away)

Dogs, 2 beagle. 213-837-8650. F

Pups, mixed border collies, black & white, to good homes. 213-324-4533. F

Rentals Offered

Apt, 1-bdrm., new cpts. & furniture, refrig./freezer comb., Riviera Village, adults, no pets, \$170 or \$160 w/1 yr. lease. 213-378-7905. G

House Trailer, 21', comp. furn., bathroom & shower, \$65 mo. 213-831-6238. G

Cabin, Green Valley, \$25 w/end; \$45 wk. 213-324-0649. G

Cabin, Lake Arrowhead, 200 ft. from lake, north shore, \$100 wk. 213-375-2255. G

Apt, 2-bdrm., cpts., dps., bitlins, all elec., closed gar., \$135 unfurn.; \$155 furn. 213-375-9397, 213-375-2091. G

Cabin, Green Valley Lake, \$35 w/end; \$55 wk. 213-320-2002. G

House, 2-bdrm., 1 bath, 2-car det. gar., large lot, \$165 mo. 213-324-7950. G

Home, 3-bdrm., 2 baths, heated pool, f.a. heat, a/c, furn., in Palm Springs, \$1,000 for 2 mos. during season; \$250 mo. by year. 213-329-3286. G

Duplex, 2-bdrm., furn., yard, close to Norair, no children or pets, \$160 mo. 213-755-1071. G

Apt, 1-bdrm., unfurn., new cpts., stove, in Redondo Bch., \$75 mo. 213-677-1310. G

Cabin, Big Bear Lake, sleeps 9, \$30 w/end. 213-867-0662. G

Apt, 1-bdrm., furn., subterranean parking, pool, bitlins, dps., cpts., pvt. deck, Lawndale, \$150 mo. 213-644-4235, 213-670-6084. G

Rentals Wanted

House, 3-bdrm., w/yard, close to L.A. Airport, under glide path o.k., pay up to \$135. 213-644-1695. H

House, 2-bdrm., w/gar., no children or pets, need in early March, pay up to \$160 mo. 213-644-6733. H

Roommate, female, age 21-25 to share beach apt. with same. 213-372-1410. H

Child Care

Child Care offered, fenced yard, 1 block from Norair. 213-644-1763. I

Lost

Tie Clip, w/15-yr. pin, reward, in Plant One. Box 108. J

Anyone seeing small dog, part pekinese & part poodle, black, please contact 213-672-1439. Reward if found. J

Found

Glasses, ladies Rx, in Compton, call Dr. Blum, ext. 1550. K

Personals

I wish to express my sincere appreciation for the expressions of sympathy during the loss of my mother. GLENN W. HILQUIST & FAMILY. L

Anyone witness to accident just before Christmas seeing a forklift run into front of 1967 GTO Pontiac, contact 213-638-9609. L

Rides and Riders

Rides Wanted

7 a.m. — 3:42 p.m.
Foothill & 2nd Ave., Arcadia. C. T. Adams, Norair ext. 1095, 213-358-5567.

7:30 a.m. — 4:15 p.m.

Santa Ana-Tustin Vicinity. R. B. Speed, Norair ext. 1555, 714-544-2261.

8 a.m. — 4:45 p.m.

Garden Grove Blvd. & Fairview St., Santa Ana. Christine Duprey, Norair ext. 1370.

Speyer Lane & Blossom, Redondo Beach. Danielle von Hiram, Norair ext. 1188.

Lakewood Blvd. & Imperial Hwy. vicinity, Downey. D. I. Miyahara, Nort. Anaheim ext. 471, 213-861-4914.

Rides Offered

7 a.m. — 3:42 p.m.
Foothill & 2nd Ave., Arcadia. C. T. Adams, Norair ext. 1095, 213-358-5567.

7:30 a.m. — 4:15 p.m.

Santa Ana-Tustin Vicinity. R. B. Speed, Norair ext. 1555, 714-544-2261.

8 a.m. — 4:45 p.m.

Vicinity of Forbes Rd., Thousand Oaks. Don Pretzer, NCL Bldg. ext. 4591, 805-495-8302.

Lakewood Blvd. & Imperial Hwy. vicinity, Downey. D. I. Miyahara, Nort. Anaheim ext. 471, 213-861-4914.

Personals

We wish to thank everyone for their kindness in the recent passing of my husband & our father, Edward Lesnick. MRS. LOIS LESNICK & FAMILY. L

Flying Aerocommander to Taos, Jackson Hole, Mammoth, Lake Tahoe, take 2-6 more, share expenses. 714-847-2648. L

Lady wants to share home, 3-bdrm. with same, prefer retiree, close to Northrop

Financial Presentation Draws 75

A Financial Awareness course, developed in support of Northrop's business objectives, is currently being presented to 75 Northrop Anaheim employees. A previous class was conducted for 30 Electronics personnel at Palos Verdes.

The program presents a wide range of company-oriented financial topics to non-financial personnel. Designed for Corporate-wide use, the course includes basic financial training, as well as specific company financial operation information.

Developed under the direction of D. L. Lewis, vice-president of Finance, and conducted by Lee Hausman, the course utilizes various inputs from several Northrop divisions and subsidiaries. These include the Northrop annual report, chart of accounts, proposals, burden rates, and many other working documents.

The course uses a minimum of class time and is organized into two major groupings. The first group, which is presented in 12 hours, covers general management, financial accounting, managerial accounting, business environment, and motivation.

The second group presents functions of finance, marketing and sales, legal and contracts, engineering, materiel, manufacturing, and industrial relations.

The first group of subjects is presented to functionally mixed personnel. It contains both basic fundamentals and special company operations. The second group is presented on an "as required" basis and expands into detailed company operations.



A GREAT JOB of helping new employees to subscribe to the U.S. Savings Bond payroll deduction plan at the Northrop Electro-Mechanical Division earned U.S. Treasury Department awards for public service for Ann Dean, left, and Jan Martin, Personnel clerks. During the 12-month period covered by the award, the work of Ann and Jan helped the former Nortronics Division achieve a remarkable 87 per cent signup of new employees.

NRC LEADER

Scouts Honor Den Mother

The Northrop Recreation Club at Anaheim presented an engraved silver bowl to Mrs. Joy Looney Wade for her service as Den Mother to the Electro-Mechanical-sponsored Cub Scout Pack 70, according to Jamie Lopez, Scout commissioner.

Presentation was made to Mrs. Wade by Cubmaster Robert Pohl in a ceremony at Lincoln School, Anaheim.

Mrs. Wade began work with the Cub Scouts when her son, Michael, joined. Michael is now in Marine boot camp, San Diego. She was still Den Mother of Den 3 when her other son, Russell,

became a cub. He is now a senior at Anaheim High School and a member of the football team.

Then for the past eight years, without a son of her own in the den, she continued as Den Mother.

The award was made by the Northrop Recreation Club in appreciation of Mrs. Wade's long service to the club-sponsored pack.

"She has not only served the pack in a wonderful way," Mr. Lopez said, "but she has greatly aided new and inexperienced Den Mothers who have come to her for advice and suggestions. Her long experience has also been a great help to both Cubmasters and Webelos leaders."

Besides her work with the Cubs, Mrs. Wade also helps out as a noon schoolyard supervisor at Lincoln Elementary School.



MRS. JOY WADE receives appreciation award from Cubmaster Robert Pohl for services to Northrop-sponsored Cub Scout Pack.

NRC GUN CLUB AT ANAHEIM BOOMING; COMPETITIVE SHOOTING PLANNED SOON

New Year plans of the Northrop Recreation Gun Club include developing a shooting team to compete with other gun clubs in the area, according to Charles H. Fox, NRC club commissioner.

"The club is booming," Mr. Fox said. "Our executive officer, Bert Millsbaugh, has greatly increased attendance at the shooting range, the Silverado Sportsman's Gun Club, Silverado Canyon. However, we are wide open for new members."

The club has a training officer so novices as well as old timers are welcome. The instructor, Vince Duarte, is a certified State

of California Hunter Safety instructor.

"We are especially interested in having young people join us," Mr. Fox said. "We have a program for both boys and girls 10 years old and over. Our program stresses safety and respect for firearms."

The club is affiliated with the National Rifle Association and participates in the U.S. Government sponsored Director of Civilian Marksmanship matches.

Membership details may be obtained from Commissioner Fox at Anaheim ext. 437 or Executive Officer Millsbaugh at Anaheim ext. 1227.

747 (Continued from page 1)

and Norair general manager, represented the two major aerospace firms at the signing of the record amount contract.

Northrop is responsible for production of virtually the entire main passenger compartment of the Boeing 747, fuselage assemblies totaling 153-feet in length and 20 feet in diameter.

Major production work is carried out at Norair Division's facility in Hawthorne. Northrop Ventura produces wing-to-body fairings for the program. Northrop's Electro-Mechanical Division produces fuselage structural components called stringers. And Northrop's Long Beach facility produces unique sandwich-type metal flooring for passenger and cargo compartments.

When peak production is reached, Northrop will be turning out eight and one-half shipsets of components per month.

Approximately 5,000 Northrop employees are currently employed in 747 work.

Twenty-six airlines in 16 countries have ordered 169 747's. Pan American Airways is scheduled to take delivery of the first aircraft late this year.

Boeing offers passenger, cargo and convertible versions of the giant new 747.

CHANGE—Frank Lynch Tells Effects of Divisional Change

(Continued from page 1)

Electronics Division will have Navigation and Guidance, Computers, Space Systems, Avionics, Command and Control Systems, Intelligence Systems, Electronic Warfare Systems, Information Systems, and Precision Products.

Q. As far as work, work stations, and association with fellow employees, it appears that the division will not noticeably affect our personnel. But what about the many social and recreational activities carried on by the Northrop Recreation Clubs?

A. Here again, I think our Electro-Mechanical Division personnel will note little difference. The Anaheim Department has always had its own Personnel Activities while the people at Research Park in Palos Verdes and at the Navigation Department in Hawthorne have been served by a separate office in Hawthorne. As far as the Electro-Mechanical Division is concerned, the office in Anaheim will just change its name to the Personnel Activities of the Electro-Mechanical Division. You will still get the same service from the same knowledgeable interested people and will go to the same clubs and enjoy the same programs and benefits as always.

Q. What about opportunities for our people?

A. On the long term, they certainly should increase. Northrop is expanding and we are expanding with it. We have the company policy of trying to fill all vacancies possible by promotions. I cannot too strongly urge that our personnel continually prepare themselves to take advantage of future opportunities. In many cases increased education is the key to promotion. Northrop has an excellent program for assisting our employees in furthering their education along lines that will increase their value to the company.

Q. What is the outlook for the future of the new Northrop Electro-Mechanical Division?

A. Our future will be what we make of it. We have goals to expand our division activities over the next five year period to about double the present volume. This is a challenging task and will demand the best from everyone. Based on the prior performance of our people, I think our chances are good that we will achieve our targets.

Q. And finally, Mr. Lynch, is there something you would like to say to our Electro-Mechanical personnel?

A. We will not be using the name Nortronics any more. Nortronics did an excellent job in supporting the total Northrop program these last 11 years. Over this period, Nortronics grew three times from a two-product, two-plant operation to its present multiple facility, multiple product complex.

STAFF—Electro-Mechanical Division Names Key Personnel

(Continued from page 1)

Northrop Support Operations Department, W. J. Oakes, jr., manager, will continue to operate its present responsibilities and its existing organization.

Northrop Carolina, Inc., J. M. Ricketts, president, will report to Mr. Lynch for administrative direction and will continue to operate with its present responsibilities.

A Tactical Systems Department will be formed from elements of the Anaheim Department and Northrop Systems Laboratories under direction of Dr. William B. Simecka, manager. Activities reporting to Dr. Simecka include:

Ordnance Applications Engineering, A. A. Hodgson, chief; Electro-Optical, D. E. Conklin, program manager; Systems Analysis, Dr. G. J. Friedman, chief;

POSEIDON

(Continued from page 1)

lem, we developed an in-house capability to design and produce what we needed."

OSDP, the next phase of Northrop's work on Poseidon test equipment, requires the manufacture of 13 new complete systems, the modification of 15 existing Polaris systems to add to the capability for Poseidon testing, and the building of 11 systems testers.

OSDP is on schedule. The first system is in the final stage of Factory Acceptance Testing and is due for delivery this month. Current delivery schedules extend into mid-1971.

Sales, H. V. Bray, director; and Technical staff, A. M. Ogness.

T. H. Quayle will be vice president and manager of the Anaheim Department. Reporting to Mr. Quayle will be R. A. Schultz, Operations manager; Engineering, D. T. Chung, director; Sales, E. J. Norman, chief.

Program Management: TEAMS, T. S. Barry, program manager; Polaris-Poseidon, R. C. Dix, program manager; Systems Programs, W. P. Van Ordstrand, program manager; ASMS, M. C. Ventura, program manager; Japan HAWK, W. A. Rothwell, program manager.

The Ocean Systems section, George N. Mangurian, director, will become an element of the Anaheim Department.

The present structure of the Needham Department will be revised. All navigation and guidance activities will be assigned to the Precision Products Department of the Northrop Electronics Division. A Needham Ordnance Manufacturing section of the Electro-Mechanical Anaheim Department will be established under direction of R. G. Shaughnessy, director. It will continue present and future ordnance production programs at the Needham facility.

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NORTHROP NEWS

ELECTRO-MECHANICAL DIVISION EDITION

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Eagle Scouts Sponsored by Anaheim Men

Dick Stuffer, Jerry Wajda and Gene Jessick, Northrop Electro-Mechanical Division, Anaheim, each sponsored an Eagle Scout at the 16th annual Eagle Scout Recognition Dinner, California State College, Fullerton, on January 29. They were joined by Rich Carlson of Northrop Data Processing, a Scoutmaster for many years.

Mr. Stuffer, chief, Personnel and Administration, sponsored Richard Quincy, 16, whose interest is Engineering. Mr. Wajda, chief, Compensation and Development, was sponsor for Jeffrey Cottingham, 14, who has an interest in oceanography. Mr. Jessick, chief, Security and Plant Protection, was the sponsor for Dick Williams, 16, whose interest is forestry. Mr. Carlson sponsored Bill Boyd, 16, who hopes to become an architect.

The sponsorship will continue throughout the year. The sponsors discussed their fields of interest with the young men and showed them through the Anaheim department prior to leaving for the dinner.

Speaker for the program was Justice John Mowbray of the Nevada State Supreme Court.



JAMES TUCKER, second from left, receives high suggestion award check from Frank W. Lynch, vice president and general manager, Electro-Mechanical Division. With them are Sal Del Grosso, foreman, Maintenance; Don McInnis, director of Ordnance Manufacturing; and Larry King, Suggestion Award administrator.

Strong Program Increases Price Obtained for Scrap

The 1969 contract price for shop generated scrap metal at the Electro-Mechanical Division, Anaheim, increased 40 per cent over the 1968 contract.

The increased value of the scrap resulted from a somewhat

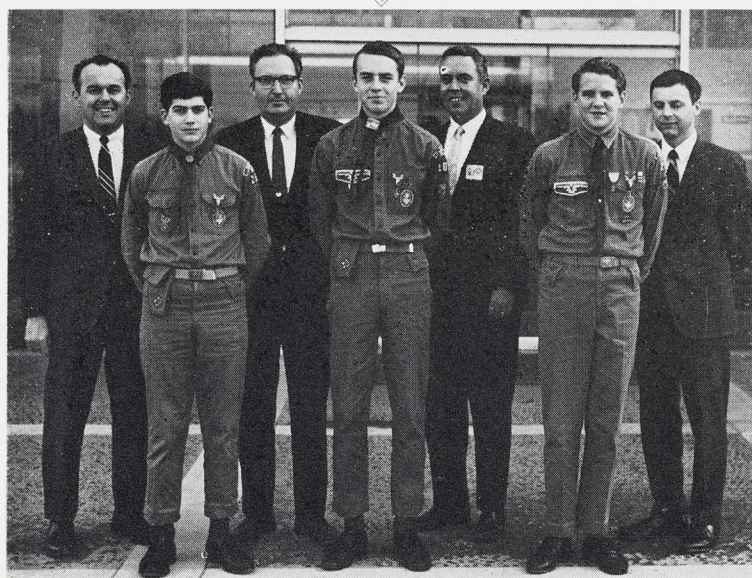
better market condition, a strong scrap program to prevent contamination and improved methods of handling the scrap.

Anaheim generates metal scrap from chips, shavings, turnings and boring at the rate of two to three million pounds a year. To insure "top dollar" returns the scrap is carefully saved, sorted and sold through annual contract bids.

"The price obtained is based upon the amount of contamination in the scrap," Nancy Keene, veteran surplus property clerk said. "Different metals bring different prices. But if they are mixed, the price will only be a small percentage of that obtained if the metals are kept separated."

Anaheim's Industrial Engineering coordinates the handling and storing of the excess metal and Property sells the scrap.

One help in raising the quality of shop generated scrap was installation of a crusher-grinder at Page Court. This machine spins and removes water, oil and similar contamination.



EAGLE SCOUTS and their Northrop sponsors pause for a moment during a recent tour of the Electro-Mechanical Division at Anaheim. From left are Dick Stuffer; Bill Boyd and his sponsor, Rich Carlson; Dick Williams and sponsor, Gene Jessick; Jeffrey Cottingham and sponsor, Jerry Wajda. Richard Quincy, sponsored by Mr. Stuffer, joined the group later in the evening.

Electro-Mechanical Division Installs New Slate of NRC Officers at Banquet

The Northrop Recreation Club—Electro-Mechanical Division—installed their 1969 slate of officers at a banquet in the Club 33, Disneyland, on January 18.

Following an opening invocation by Marvin Wiebe, commissioner, NRC Bible Club; Tom Quayle, vice president and manager, Anaheim department, spoke

(See Photo, Page 6)

to the group. In his address Mr. Quayle reviewed the work of the recreation clubs and lauded their contributions to employee welfare.

Art Eckel, past president (1961) of the Anaheim NRC, was

master of ceremonies and installed the new executive committee. Members are Vaughn Peak, president; Marvin Wiebe, vice president; Donna Robison, secretary; Gaylord Miller, treasurer; Don Taylor, sergeant-at-arms; Bill Kieffer, past president; and Harry Belcher, Industrial Relations representative. Mr. Kieffer as outgoing president passed the gavel to his successor, Mr. Peak.

Mr. Peak introduced the new commissioners who are: George Garner, Archery; Ed Mosher, Art; Don Ross, Basketball; Mar-

(See NRC, page 6)

Second Highest Suggestion Award Received by Tucker

The second highest cash award for a suggestion given in the last 18 months went to James Tucker, maintenance administrative associate at Anaheim.

The \$1,769 check, presented by Frank W. Lynch, vice president and general manager, Electro-Mechanical Division, was for a suggestion to use locally manufactured clutch assemblies for punch presses. The results have been higher quality, longer life and lower cost.

Twenty-four others also received awards in the final period of 1968, according to Larry King, Suggestion Award program administrator.

Jack Burton received \$159 for his suggestion to use spring loaded rollers in the forming machines for stringers. Vern Rand and James Feathers received \$115 each for their joint suggestion to remodel a lathe carriage drive system from pneumatic to hydraulic.

Charles Driscoll took three awards, a \$23 check for suggesting bumpers on freezers in Y-12, and two checks for \$92 and \$96 for revising shearing layouts in the Sheet Metal shop.

A \$50 award went to Robert Bojorques, Northrop Support Operations, NASA Ames Laboratory, for a method of feeding

rats on an extended centrifuge test. Receiving \$40 checks were Linda Brandis, Automation Systems, Wallace Polk, Maintenance Electronics; and Al Arroues, maintenance mechanic.

Others included Richard Carpenter, Page Court, \$36; Jerry Salisbury, Y-1 Machine shop, \$33; Gloria Hellinger, Electronics Assembly, \$30; Mark Uhlich, Electro-Mechanical Assembly, received both a \$30 and a \$20 award.

J. A. Kimmons, Mechanical Assembly, \$24; Gladys Sanford, Electronics Assembly, \$28; David Whisler, Ordnance Fabrication, \$25; Thelma Grady, Ordnance, \$20; and Caroline Wildes, Processing Engineering, \$20.

Still others receiving suggestion awards were: Melvin Shier, Page Court, \$15; Louis Wynants, sr., Ordnance Tooling, \$15; Ron Cramer, Electro-Mechanical Assembly, \$13; Norman King, Machine shop, \$10; Cynthia Beamon, secretary, \$10; and Chet Wasik and Alvin Roach, Y-1 Machine shop, who shared a joint award of \$10 each.

Response Good For Noon Talks About Finances

Additional lectures in the Financial Awareness Course, originally developed for presentation to select management personnel, were recently conducted in noon hour sessions for all interested personnel of Northrop's Electro-Mechanical Division, Anaheim.

The original course was developed by Lee Hausman under direction of D. L. Lewis, former Nortronics vice president, Finance. It has been presented to 100 managerial personnel at Palos Verdes and Anaheim.

The new lectures condense the course so it can be presented in six noontime sessions to anyone desiring to attend. They were made by Mr. Hausman while attendees ate their lunches.

FOURTEEN BECOME ELIGIBLE FOR PINS

Fourteen employees from Northrop Electro-Mechanical Division will become eligible in February for 15, 10 and 5 year service pins.

Completing 15 years of service with Northrop will be Francis A. Chandler, Estelle Burger, Thomas R. Kennedy, Charles R. Hamilton, Maurice Thews, George W. Banion and Theodore M. Witsil.

Ten year pins will go to Doris Meunier, Albert A. Hodgson, Harold L. Withee, Elmer C. Richmond and Dorothy F. Miller.

To be honored for five years service are Carlos Padilla and Jesse Huseman.



VALUE OF SHOP GENERATED scrap has been increased by improved collection techniques. Center, Nancy Keene and Lynn Cooper, warehouseman in charge of scrap collection, go

over records. Left, scrap is carefully collected and separated. Right, a grinder-crusher also does its part in adding to the value of the metal chips and trimmings.

First Flight Test Conducted on Boeing 747 Jetliner



THE BOEING 747 JETLINER ROARS INTO THE AIR SUNDAY AT THE BEGINNING OF ITS MAIDEN FLIGHT. UPI TELEPHOTO.

NORTHROP NEWSMAKERS

J. S. Plummer, Ventura, is a member of a panel participating in the National Contract Administration Association's 5th Educational Conference Friday at the Airport Marina Hotel, Los Angeles. The conference will cover "The Assessment of Risks in Weapon System Acquisition."

A. L. Scow, Norair, has prepared a paper titled "Production Processes for Extruding, Drawing and Heat Treating Thin Steel Tee Sections" to be presented at the Air Force Metalworking Technology Conference at Dayton, Ohio.

Peter T. Wooler, Norair, has written an article titled "The Flow of a Circular Jet into a Cross-flow" for publication in the *Journal of Aircraft*.

Ray Lavi, Ventura, has been appointed to the Technical Committee on Air Breathing Propulsion for the American Institute

of Aeronautics and Astronautics by AIAA President Floyd L. Thompson. Mr. Lavi is an associate fellow of AIAA.

Kenneth G. Lindh, Ventura, has been awarded a doctorate in engineering from UCLA. Dr. Lindh, 38, also earned his bachelor's and master's degrees there.

H. E. Riggins, Ventura, has been named to the Ventura County Air Pollution Control District advisory board by the County Board of Supervisors.

B. L. Brigham and **W. W. Westcott**, both Norair, have been accepted as members of the Society of Air Safety Investigators. This American organization with members around the world is comprised exclusively of men who are actively engaged in flight safety work who meet rigid specifications set by and administered through the society.

Corporate Headquarters Consolidation Plans Told

Plans have been announced for consolidation of Northrop's Corporate headquarters operation in a new building now under construction in Century City.

Corporate personnel now are located in Beverly Hills, Century City and Hawthorne. Northrop will lease the top five floors of the new 15-story structure located at Santa Monica Boulevard and Century Park East.

The move of Corporate offices from the present location, 9744 Wilshire Boulevard, is scheduled for early 1970.

The new structure, to be known as the Northrop Building, will be owned and developed by Century Park Associates, a partnership composed of Robert F.

Maguire III and William H. Carter.

"We have been searching for an advantageous consolidation of our headquarters for the past two years in order to achieve efficiency and reduced cost through centralization of our present Corporate function," President Thomas V. Jones said. "The proposal submitted by the Maguire organization was selected over a number of other proposals and represented an imaginative solution which will result in significant reductions in long-term occupancy expense to Northrop, while permitting tenancy in a building of exceptional quality."

Architect for the project is Wilton Becket & Associates.



JAMES D. WILLSON, standing, vice president, Finance, goes over a point with attendees of a Northrop seminar on "Finance for Non-Financial Executives." Listening are, from left, **George Chalmers**, Electronics; **J. A. O'Malley**, Ventura; **Dr. V. W. Howard**, Electronics; **W. E. Woolwine**, Norair; **L. C. Breckenridge**, Dayton office and **Jack Young**, Norair.

Executives Hear Willson At Seminar

Twenty-four Northrop executives have taken part in a special "Finance for Non-Financial Executives" seminar.

Held at Norair Division over a two-day period, the seminar was conducted by James D. Willson, vice president—Finance as part of the Corporate Management Development program.

Corporate office attendees were Dr. D. A. Hicks and L. C. Breckenridge.

Taking part from Norair were Gaylord Anderson, Mike Creamer, Dave Deering, Max Fayweather, Lew Nelson, Wally Reese, John Richardson, Don White, W. E. Woolwine and Jack Young.

From Electronics Division the attendees were G. C. Chalmers, Roy Kaufold, K. F. McCready and Dr. V. W. Howard.

Electro-Mechanical Division sent V. A. Cherbak, T. S. Barry, R. A. Schultz and R. C. Dix.

W. A. Steyer, G. Bucsis, J. A. O'Malley and L. V. Albright attended from Ventura Division.

Former Employees Sought For Retirement Benefits

The response of Northrop personnel to an appeal for help in locating former employees has been outstanding. As a result, many individuals have been advised of retirement benefits and payments available to them through the Northrop Retirement Plan.

Another group is being sought for the same purpose. Any employee knowing an individual named is asked to have them call ext. 302 at Beverly Hills, the Corporate office.

The new list includes William T. Darnell, James D. Davis, Harold Dawson, Walter A. DeVore, Roberta M. Douthitt, Jack W. Doyle, Arthur J. Dugdale, Thomas H. Dunlavy, Clyde E. Early, William B. Eddy, Amon N. Evans, Bruno Fordiani, Felicia Frey, Cornelius W. Fields, Verne C. Frost, Edward P. Gerdovich,

Walter T. Gilman, David R. Grabau, Duane F. Grosart, Leonard A. Groves.

Harold W. Guess, Jack R. Halter, Marcel R. Hamel, Ruth M. Kornder, Cameron W. Larson, J. T. Laurie, Robert L. Langner, Raymond J. Lorenz, Harry W. Lee, Helen C. R. Hangsleben, Joseph Harding, John A. Hargas, Oliver A. Harker, Charles Hartman, John F. Herrick, Burl D. Hiland, Reginald V. Hill, Claremont C. Hippler, Arthur P. Hodges, William J. Hofmann, Robert E. Householder, Leonard G. Howe, James E. Hughschoff, Stanley G. Huston, Carrol S. Johnson, J. V. Johnson, Orin P. Johnson, Harold L. Jones, Harold Kavanagh, Donald C. Kellogg, Theodore E. Kelly, John W. Ketchum, Harry V. Kibbe, John D. Knox, Eugene Leedy, Leander J. Ludwig and John M. Lynn.

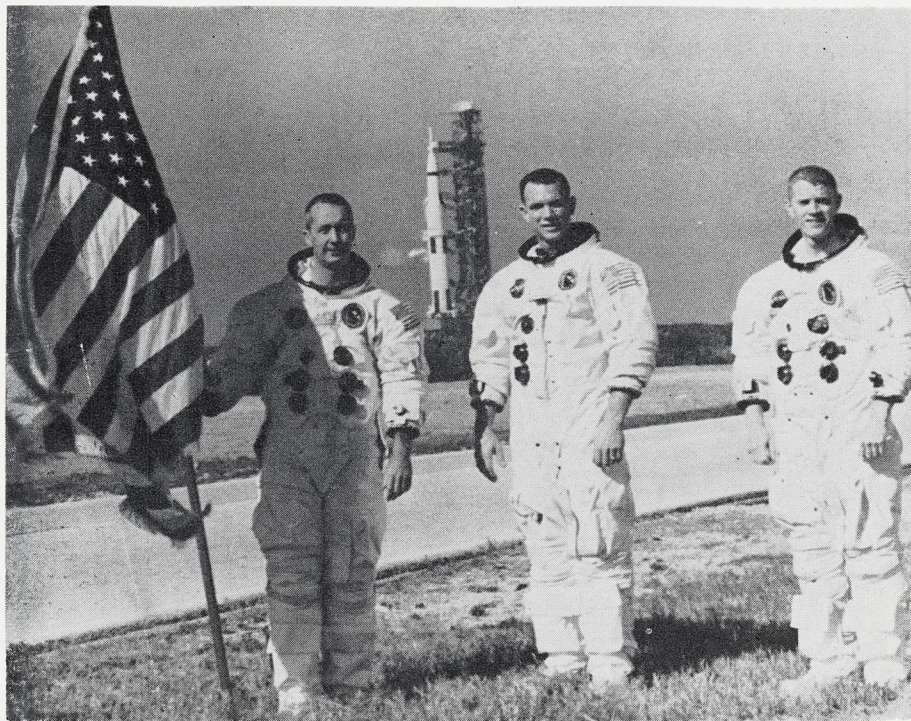
Page Engineers Saves Money For U.S. Army

A contract savings estimated at \$222,827 will be realized by the U.S. Army Strategic Communications Command, Ft. Huachuca, Arizona, as a result of Value Engineering Change Proposals submitted by Northrop Corporation's Page Communications Engineers.

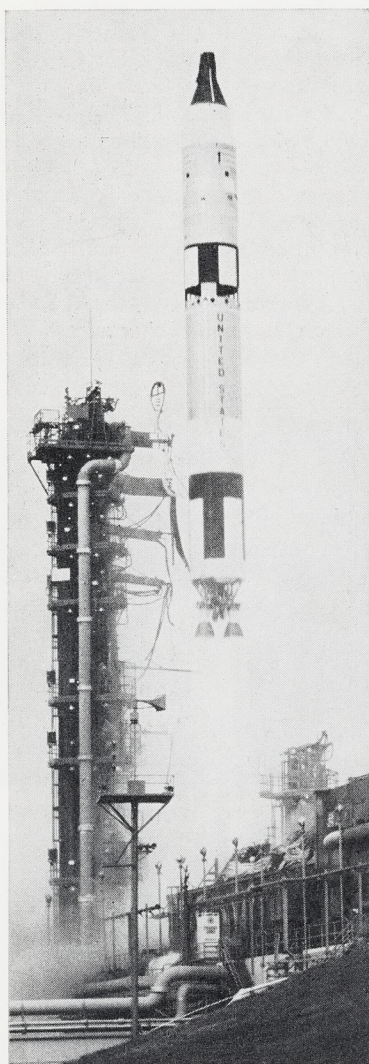
The savings change covers automatic voice leveling in Page's \$4.5 million contract for Recoverable Microwave Terminals, part of the Integrated Communications System-Vietnam Page is currently installing in Vietnam. The contract is under the Communications Systems Agency.



SPACEMEN—Apollo 8 astronauts, left, Frank Borman, James Lovell and Bill Anders wave to sailors on carrier. Below, Gemini Program's Ed White, first space-walker. Right, Apollo 9 crew which will launch February 28. They are Jim McDivitt, David Scott and Russell Schweickart.



Northrop Backs Them Up—From John Glenn to Moonwalk



LIFT-OFF — John Glenn's Mercury vehicle lifts off seven years ago, below. Gemini 7, above, was in 1965.

Seven years ago, on February 20, 1962, John Glenn made history with the first American manned orbit of the earth. This year American astronauts are scheduled to walk on the moon.

Throughout the NASA program, from the fledgling manned Mercury Project to the upcoming aerospace climax of the decade, Northrop's role has been significant.

Northrop-produced equipment will help track the lunar astronauts, land them safely upon their return (as it did with Colonel Glenn and subsequent spacemen) and then house them for a two-week quarantine period at Houston.

The 12-million-pound Apollo 9 vehicle is on the Cape Kennedy launch pad undergoing pre-lift-off checkout. In two weeks it is scheduled to take Astronauts Jim McDivitt, Dave Scott and Russell Schweickart on the next stairstep to the moon.

Near the tip-top of the 36-stories-tall moonflight machine are over 600 pounds of parachutes and related materials produced by Northrop Ventura to land the command module at splashdown.

After Apollo 9, scheduled for launch February 28, four more Apollo shots are planned. One of them will perform the lunar landing, probably in July or August.

Apollo 9 will be the first U.S. manned space test of the lunar

module which will later land men on the moon.

Also included in the 10-day earth-orbiting mission will be the first Apollo extra-vehicular activities featuring a transfer of two of the three-man crew to the lunar module, rendezvous and docking.

Following Apollo 9 in eight to 12 weeks will be Apollo 10, planned to send a lunar module with two astronauts to within 50,000 feet of the moon's surface.

Finally, after Apollo 11 astronauts stroll on the moon, they will be returned to the Lunar Receiving Laboratory at the Manned Spacecraft Center in Houston within 15 hours after splashdown.

Technical operation of the unique controlled environment laboratory will be done by the joint venture of Brown & Root-Northrop. It will keep the astronauts fully isolated for two weeks while they undergo extensive test-

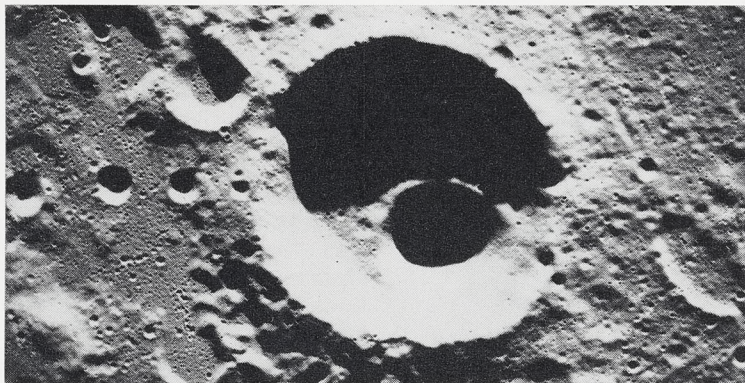
ing for possible contamination by unknown viruses.

Northrop's Precision Products Department will provide accelerometers (precision motion-sensing instruments) as part of the massive tracking and information relay complex.

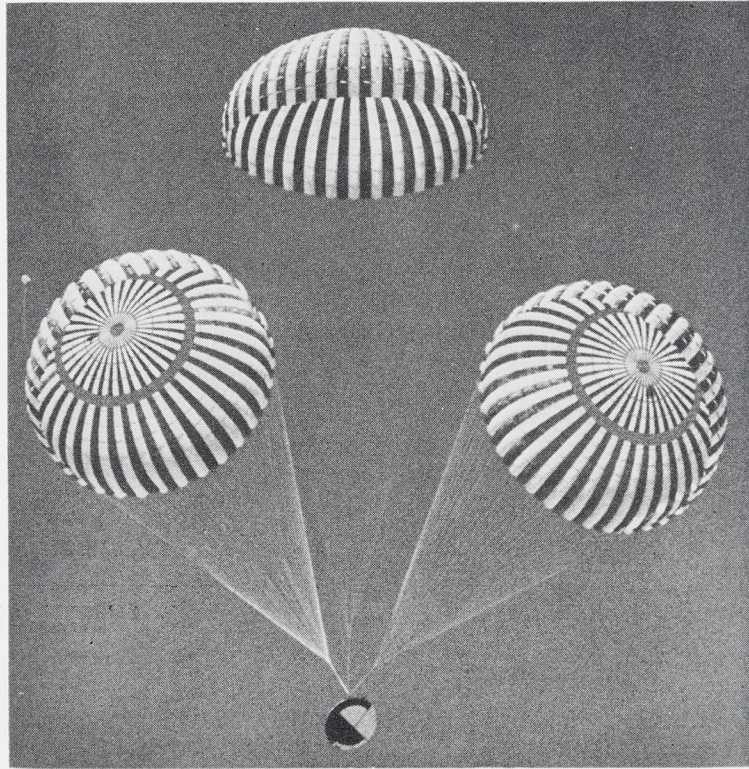
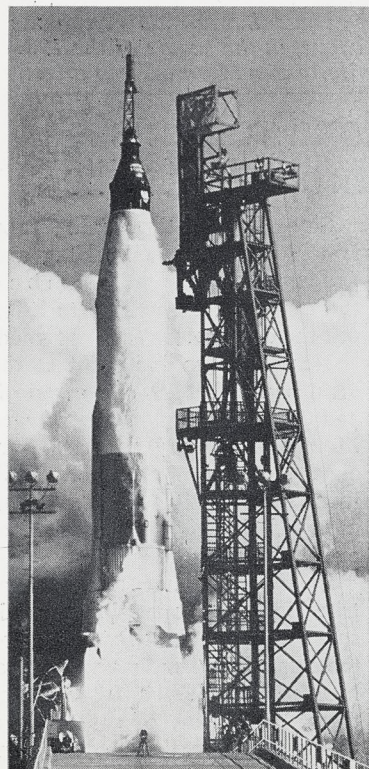
Also involved in Apollo is the Astrodynamics section at the Electro-Mechanical Division's Huntsville, Alabama, facility which helps provide real-time trajectory analysis support.

Continuing to track the Apollo ships once they fly out of range from ground cameras will be the Northrop-developed Airborne Lightweight Optical Tracking System (ALOTS).

The television-like devices are mounted in big Air Force KC-135 aircraft and display "live" photos of the spacecraft when it is within range of the airplane. ALOTS' range is limited to the carrying capability of its "host" plane.



LANDING — Northrop-produced Earth Landing Systems used one parachute, above, in Mercury Program and advanced to three chutes, below, in Apollo. Below, center, Colonel Glenn enters Friendship 7 capsule before first manned orbit. A 20-mile wide crater, left, is typical of what moonwalkers will encounter when the program climaxes this summer. (NASA photos.)



WHAT DO YOU THINK?

Which U.S. President Has Proven Most Effective in Your Lifetime



Mrs. LaBonte

Dessa LaBonte, Personnel clerk, Ventura:

I'm not too politically oriented so an outstanding president doesn't come immediately to mind. But I guess Franklin Roosevelt was the best because of all the good he did for the country—and the way he did things—his smooth manner.

Jack Welch, crew chief, Norair Palmdale:

I've admired every president in my lifetime, but feel Franklin D. Roosevelt was the greatest. He helped the nation back on its feet after a terrible fall. His conservation efforts are still serving us; his financial contributions are still in effect.



Mr. Welch



Mrs. LeDay

Lou Anna LeDay, microwelder, Electronics:

John F. Kennedy. Because he tried to help everybody. I think he pushed things through faster.

Lenny Wayland, Data Processing, Electro-Mechanical:

I can't remember too many, but I thought John F. Kennedy was the best. He seemed to try harder. And then I liked the way he talked so you could understand what he was saying.



Mrs. Wayland



Mr. Semones

George Semones, Facilities and Property, Ventura:

Franklin D. Roosevelt. At the time we were in our most serious economic chaos he came along with programs that resurrected the country. Some of these would be the National Bank Holiday, Works Projects Administration and the National Recovery Act.

Alice Ames, Automated Data Systems coordinator, Norair:

Dwight D. Eisenhower is the man for me. He is a gentleman of the first order, respected, trusted, admired. As president he had a knack for dealing with people, at home and abroad. He was a leader with faith who also knew the meaning of humility.



Mrs. Ames



Mr. Taylor

Robert O. Taylor, Facilities engineer, Electro-Mechanical:

F. D. R., certainly. Franklin D. Roosevelt was the most original in putting through new programs. Many were of lasting and tremendous value such as social security, bank insurance and social programs. The others, it seems to me, only followed the trails he blazed.

R. J. Petrini, Proposals Engineering supervisor, Electronics:

Franklin Delano Roosevelt because he served in office during the depression and wartime. Through both his political acumen and personality, he was able to gain the confidence of the public under adverse conditions.



Mr. Petrini

TRAVEL CLUB WILL DISCUSS 1969 TOURS

Northrop Travel Club members from all divisions will hold a meeting at 7:30 p.m. Friday at Dandel's Restaurant.

Pictures from the NRC-sponsored Hawaiian tour will be shown and plans for future group travel events formulated.

ABOARD TRAIL BIKE

'Golden Years' Promise Lots of Action

When Clarence P. Koons, "turns himself out to pasture in a wheelchair" upon retirement this month, his pasture will be the California desert and his wheelchair will be a trail bike.

Practicing for retirement, Mr. Koons, a facility analyst with the Northrop Electro-Mechanical Division's Industrial Engineering group, has been spending his weekends and holidays for the last several years in a desert located house-trailer and on a trail bike exploring every remote trail he can find between the San Geronio Mountains and Joshua Tree National Monument.

Clarence sees nothing unusual in a 66-year-old man bouncing across the desert rocks, dodging cactus and riding his bike up grades in excess of 45 degrees.

A trail bike is a lightweight motorcycle geared for power in climbing instead of speed. The one he rides now is a present from his wife. He got it only after promising her that he would not go back to motorcycle racing, his favorite sport before they met 42 years ago.

From motorcycle racing, he moved into auto racing and became a pioneer hot rodder. "Only we called them 'Hobo Racers' in those days," he said. "We souped up Model T's. For tracks we would scrape off local wheat fields after the harvest was in.

This was in 1919, 1920 and 1921."

Today he has given up racing and devotes himself to the trail bike. He claims it is a lot safer than a car.

"Of course," he added, "on the desert one has to watch what he's doing. Generally you make your own paths. There are no roads, except occasional maintenance trails cut by utility crews. If you don't watch what you're doing, you'll land in a cactus patch. I guarantee that the price of inattention is pulling thorns out of your bottom the rest of the day."

Trail-biking through the des-



CLARENCE KOONS displays a novel lamp he fashioned from desert driftwood gathered in a remote spot during a trail bike excursion.

ert has other rewards than just viewing the scenery. One of the bonuses is collecting desert driftwood.

"The roots of many desert plants are curled into odd shapes," he said. "After they are whitened with ordinary household bleach, they make extremely attractive objects for the home. One of our favorites is cholla cactus. After the bark is removed it has holes like Swiss cheese. The wood can be made into novel candleholders, flower arrangement holders and the like."

Still another desert-adventuring delight is the multitude of "characters" one meets, according to Mr. Koons.

"You run across rockhounds, odd prospectors, odd campers, and even—as I did on one occasion—a group of young ladies sunbathing."

Mr. Koons has been with Northrop since 1955. He will retire this month and eventually will make the desert his home. This will be delayed by one year since he is Leading Knight of the Fullerton Elks Club and is slated to become Exalted Ruler. He has promised the lodge he will remain to help them through 1969.

After that—"well, the desert—which is full of characters—will get another!" he says with a smile.

Forty-Year Service Stint Climaxed by Bill Simpson

A Northrop employee who wished he had never heard of the Marines after his second day in the Corps has retired as a full commander from the U.S. Coast Guard, after 40 years of active and reserve service.

William T. Simpson, Tool Crib attendant in Plant Two, Norair, received his retirement certificate during ceremonies last month on Terminal Island.

Mr. Simpson started his military career in the summer of 1927, enlisting in the Marine Corps as a buck private. After completing boot camp at Paris Island, South Carolina, and serving a tour of duty aboard the Battleship USS Wyoming, he was transferred to Nicaragua.

He vividly recalls the 1931 earthquake that shook the capital city of Managua, killing thousands of people:

"I had only been in the country three days when it hit," Mr. Simpson said. "We had an old trimotor Ford Fokker on base and I thought it may have crashed when I saw this big Spanish-type house start to shake."

"The next thing I remember is seeing a nearby garage collapse. It was then I realized it was a quake and headed for the open spaces so nothing would fall on me," he added.

"It was awful," Mr. Simpson continued. "The whole town was destroyed. Even the pet monkeys on base sensed what was happening and ran up some coconut trees. It was three days before we could coax them to come down."

"I guess the major part of the quake lasted a full minute. The tremors continued for a full 48 hours after that."

For his work in helping rebuild the town, Mr. Simpson received a

letter of commendation from the Marine Corps commandant.

During the war he was stationed on both the east and west coast, training enlistees for beach patrol duty. He received his commission as an ensign in August 1943.



WILLIAM T. SIMPSON, Norair, as he looked, above right, on retirement from 40 years of active and inactive duty with the U.S. Coast Guard. He is seated, above, in the rubble of the 1931 earthquake in Nicaragua in the uniform of a Marine Corps private.

Nellie's Multiplication Problems Are Solved at Northrop Huntsville

"Taking care of Nellie" is quite a job at Northrop Huntsville—especially since she multiplied.

Nellie was a homeless, about-to-be-a-mama dog found wandering about the Northrop parking lot by receptionist Mona Moore. She earned the dog's friendship with a hot dog, beef stew and milk from a vending machine.

After this Nellie stayed around to become quite a pet. The employees decided to keep her and let Nellie have her puppies there at the plant.

Nellie perversely passed up the nice place they fixed for her and picked the deep interior of a highway culvert as the home for her new babies.

Since it was threatening rain, Jim Hodges of the Building and Procurement Services climbed through the narrow pipe to bring out the dogs before they drowned.

Nellie was so indignant at the disturbance that she wandered off and left the pups. Mrs. Edward Mohlere, secretary to J. A. Barclay, Northrop manager, took them home with her. She sat up most of the night to feed them every three hours.

In the meantime a now contrite Nellie and one of the guards spent half the night searching for the pups. The next morning Mrs. Mohlere's husband tried to return them. He ran out of gas and had to lug the pups through the rain.

Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale
Thunderbird, 1957, new paint, \$1,695. 213-465-8684. A
Buick, 1963 LeSabre, 4-dr. sedan, a/c, p/s, p/b, \$750. 213-541-1277. A
Chevy II, 1967 Nova sport cpe., V-8, p/s, \$2,000. 213-329-6717. A
Pontiac, 1963 convt., p/s, p/b, \$550. 213-679-5238. A
Ford, 1959 Galaxie, 2-dr. h/top, \$350. 213-363-3843. A
Pickup Truck, 1956 Chev., '67 bed, sleeper w/ice box, \$650. 213-327-5376. A
Corvette, 1961, all new parts, \$1,300. 213-644-2211. A
Buick, 1960 LeSabre, \$300. 213-671-9598. A
Pickup Truck, 1946 Ford, rebilt. 324 cu. in. Oldsmobile eng., \$365. 213-329-6690. A
Pickup Truck, Chev. w/Open Road camper, 8 ply tires, fully equipped, \$1,900. 213-376-7569. A
Chevrolet, 1964 impala, 2 dr. h/top, fully equipped, \$1,325. 213-651-0445. A
Volkswagen, 1964 Squareback wagon, Variant S, \$1,200. 714-646-1543. A
Mustang, 1966 2+2, 4-spd., \$1,695. 213-377-7670. A
Chevrolet, 1964, Super Sport, p/s, p/b, a/c, \$1,350. 213-861-7960. A
Karmann Ghia, 1965, r/h, \$1,600. 213-569-0418. A
Chevrolet, 1964, Bel Air, 6 cyl., 3-spd., r/h, \$150 & take over \$34 mo. pymts. or \$750. 213-636-6602. A
Chevrolet, 1961, Bel Air sedan, 4 new tires, \$500. 213-755-7255. A
Ford, 1956, 4-dr., 6 cyl., auto. trans., r/h, \$95. 213-674-3843. A
Volkswagen, 1968, r/h, \$1,600. 213-325-0639. A
Dodge, 1960 Phoenix 500, 2-dr., fact. air, \$200. 213-663-3622. A
Chevrolet, 1964 Impala S.S., V-8, r/h, p/s, auto. trans., \$1,150. 213-860-2235. A
Pickup Truck, Jeep, 4-wheel drive, many extras, \$800. 213-532-6695. A
Chevelle, 1965, V-8, 283, 2-dr. h/top, auto. trans., r/h, p/s, \$1,400. 213-644-6615. A
Pickup, 1959 Ford, V-8, auto. trans., heater, \$200. 213-679-2861. A
Volkswagen, 1964, radio, \$1,000. 213-379-8993. A
Austin Healey, 1961 Sprite, eng. rebilt., \$600. 213-671-0925. A
Ford, 1968 Custom 500, p/b, \$2,600. 213-834-4021. A
Station Wagon, Ford Bronco, 4-whl. drive, r/h, V-8, many extras, \$2,150. 714-847-2648. A
Buick, 1962 Invicta convt., p/s, p/b, air, \$525. 213-598-3072. A
Buick, 1955 Special, V-8, r/h, auto. trans., \$100. 213-322-7869. A
Volkswagen, 1968 bus, 7-pass., AM/FM radio, ice box, rear seat makes into bed, extras, \$2,250. 213-564-4797. A
Camaro, 1967, V-8 327, p/s, fact. air, auto., \$2,150. 213-374-6841. A
Oldsmobile, 1962 Starfire, full power, fact. air, \$500. 213-372-4037. A
Station Wagon, 1956 Chevrolet, 327 eng., headers, Hurst floor shift, cam, \$395. 213-473-1568. A
Chevelle, 1966 S.S. 396, 360 h.p., 4-spd., \$1,900. 213-370-7142. A
Station Wagon, 1960 Chevrolet Parkwood, r/h, \$350. 213-645-3469. A
Shelby, 1967 GT500 Cobra 428, auto., air, stereo, \$3,495. 213-374-5935. A
Buick, 1967 Riviera, custom, full power, a/c, console, \$3,600. 213-675-4752. A
Volkswagen, 1961, \$795. 213-378-5742. A
Sports Car, 1963 Apollo, stereo, air, Buick V-8, \$3,500. 213-377-8860. A
Prinz, 1960 German NSU, r/h, \$100. 714-527-5407. A
Pickup, 1967 Chev., custom cab, 283, 3-spd., hvy. duty equip., 10,500 mi., \$1,950. 213-284-0768. A
Rambler, 1963, 4-dr., Classic, 6 cyl., stick shift, \$325. 213-833-5594. A
Rambler, 1963 American Classic, 2-dr., \$600. 212-634-8736. A
Volkswagen, 1966 Sunroof, r/h, \$1,250. 213-894-1381. A
Ford, Galaxie 59, p/s, p/b, r/h, a/c, \$350. 213-430-5027. A

Household Items For Sale
Bookcase, natural wormwood, bottom sec., 2 1/2' high x 8' long, top sec., 5' high x 3' long, \$75. 213-371-7940. B
Stove, O'Keefe & Merritt, gas, 4-burners & griddle, \$20. 213-370-6810. B
Chair, modern, high-back, removable covers, \$20. 213-378-4959. B
Stove, O'Keefe & Merritt, \$60. 213-675-3541. B
Sewing Machine, Singer, portable, \$25. 714-638-5068. B

Household Items For Sale
Refrigerator, Frigidaire, \$50. 213-372-5425. B
Bed, full size, Simmons mattress, box springs, \$25. 213-323-5931. B
Youth Bed, Edison birch, Kantwet mattress, bedding, \$25. 213-323-8089. B
Playpen, mesh, \$5. 213-376-9831. B
Crib-Playpen, combination, \$8. 213-675-7938. B
Hide-A-Bed, pr. twin sectionals, custom made, \$170. 213-865-2036. B
Reclining Chairs, matching pr., tan naugahyde, \$100. 213-325-4792. B
Bathinette, up to 8 mos. old, \$12. 213-372-7994. B
Range, Wedgewood, gas, 4-burner w/center grill, \$30. 213-676-9385. B
Bed, twin, solid maple, \$20. 213-372-3827. B
Freezer, Coldspot, 17' chest, 3 yrs. old, \$150 213-323-6366. B

Miscellaneous For Sale
Flying Club Membership, Hawthorne Airport, share, \$450, Bonanza \$12 wet, Cessna Skyhawk \$9.50 wet. 213-676-9103. C
Golf Clubs, MacGregor irons, Stan Thompson woods, cart & bag, \$75. 213-532-4757. C
Speaker System, 2 Kaye-Halbert, stereophonic, 3-way, oiled walnut, \$110. 213-679-3068. C
Motorcycle, 1967 CB 160, manual & elec. starter, \$300. 213-676-1504. C
Surfboard, 9'3" w/tailblock, \$85. 213-672-8260. C
Hair Dryer, \$4. 213-392-2628. C
Acreage, 5 acres, 5 miles off Klamath Falls Lake, Ore., flat land, \$2,500. 213-830-4364. C
Tape Recorder, never used, Revox model 77A, Swiss mfgd., \$500. 213-295-8958. C
Tape Recorder, Berlant Concertone mod. 33 studio stereo, speeds 7 1/2 & 15 ips, other access., \$250. 213-326-8455. C
Utility Trailer, 4'x6'x2', \$150. 805-526-7767. C
Motorcycle, Bultaco, 175 cc, \$225. 213-534-1974. C
Golf Clubs, 1, 2, 3, 4 Wilson woods, 2-9 Spalding Elite irons, sand & pitching wedges, \$130. 213-676-6298. C
Engine, 1955 Hemmi, 385 cu. in. w/Imperial body attached, \$225. 714-837-8257. C
Wheels, 2 14" mag, by Ansen, \$50. 213-370-0131. C
Heuse, 3-bdrm., 2 baths, Diamond Bar, bltins, patio, fenced, 10% dn., \$20,800. 714-595-6032. C
Surfboard, 9'10", Vardeman, \$40. 213-372-8618. C
Honda, 1966 305 Scrambler, \$300. 213-370-9866. C
Aquarium, 20-gal., incl. fish, htr., other access., \$50. 213-324-5140. C
Lathe, wood turning-type, 12" swing, 40" bed, \$20. 213-676-5101. C
Amplifier, for guitar, Standel Artist 12 mod., 2 Jensen spkrs., reverb., \$350. 213-474-5682. C
Trailer, 16' Oasis, self-contained, dble. butane tanks, stove, refrig., sleeps 5, \$1,175. 805-482-6125. C
Accordion, Universal, 120 bass, intermediate size, take over \$15 mo. pymts. or \$270. 213-370-5316. C
Typewriter, Royal portable, \$60. 213-644-8385. C
Tire Chains, bar-reinforced, fit 7.10-15, 8.00-14, 8.15-15, 8.25-14, \$6. 213-673-4698. C
Pup, bassett, AKC, male, 3 mos. old, tri-colored, \$75. 213-323-9695. C
Jacket, mink, autumn haze, Emba, size 12-14, \$300. 213-370-7904. C
Acreage, 10 acres, Perris Lake, view, terms, low dn., \$13,900. 213-377-1074. C
Radio Receiver, Hammerlund HQ-170, ham-band only, 160 to 6 meter coverage, \$100. 213-671-3515. C
House, 3-bdrm., 2 baths, heated pool, fam. rm., P. V. Pen., \$42,500. 213-377-6029. C
Home, 3-bdrm., lge. den, corner lot, dble. gar, 10 min. to Norair Haw., 5 min. to Torrance facilities, \$26,500. 213-329-6923. C
Accordion, Contello, 120 bass, case, \$175. 213-374-8645. C
Sailboat, 28' wooden sloop, inbd. eng., dacron sails, sleeps 4, \$4,500. 213-378-4352. C
Cruiser, Chris Craft, 30', 145 h.p. twin eng., 75 W. radio, \$4,900. 213-672-8829. C
Micrometer, 1" Lufkin satin chrome, Vernier scale, ratchet & thumb lock, \$15. 213-429-2286. C
Wedding Dress, Cahill gown, ivory brocade, chapel train, long sleeve, empire styling w/veil, size 10, \$60. 213-679-4241. C
Tape Recorder, Continental portable transistor, mod. TP-570, 4 extra tapes, \$35. 213-373-3128. C
Skis, laminated wood, safety bindings, 63" long & 80" long, \$10 pr. 213-328-6662. C
Hi Hat, drummer's, 2 mos. old, w/2 15" Zild Jian cymbals, 17" Zild Jian ride cymbal, \$100. 213-644-1695. C
Motorcycle, Yamaha, 250 cc, Big Bear Scrambler, 2 yrs. old, \$440. 213-372-3921. C
Acreage, 2 1/2 acres, Antelope Valley, \$29 dn., \$29 mo., no int., \$2,900. 213-378-1026. C
Rings, engagement & wedding, \$300. 213-326-4459. C
Tape Recorder, Craig mod. 3301, 4-track tapes, \$200. 213-644-6733. C
House, 3-bdrm., 2 baths, cpts., dps., bltins, patio, near Del Amo shopping center, \$27,500 213-325-3724. C
Fall, light blonde, human hair, 12"-14", \$40. 213-644-4164. C
Chains, for 7.75x14, 8.00x14, 8.25x14, 7.10x15, 8.15x15 tires, \$6. 213-869-5536. C
Bicycle, 3-spd. Schwinn Sting Ray, \$30. 213-374-9944. C

Miscellaneous For Sale
Horse, reg. Appaloosa mare, \$500. 213-754-1796. C
Tricycle, small, \$2.50. 213-325-8175. C
Drum Set, 5-pc., St. George, \$150. 714-499-1144. C
Bicycle, \$15. 213-430-2619. C
Generator, 3,000 w., 120 VDC w/7.5 h.p. Wisconsin eng., mounted on wheels, \$125. 213-377-0821. C
Bicycle, 21" 10-spd., 8 mos. old, \$35. 213-679-0809. C
Ski Boots, buckle, men's 10 1/2, \$25. 213-545-2431. C
Motorcycle, 1966 Bonneville Triumph, 650 cc, \$800. 213-675-9673. C
Boat, 16', \$325. 213-374-4944. C
Heads, & 4-bbl. manifold, early Chev. Power Pack, \$50. 213-676-1235. C
Camper, 1964 Lazy Daze, 10' side dinette on 1962 GMC 3/4-ton, 305D eng., 4-spd., a/c, extras, \$2,195. 213-675-9442. C
Dachshunds, 2 miniature, red, female, 3 & 5 yrs. old, AKC, papers avail., \$50. 213-865-1880. C
Boat, Brind, 70 h.p. Merc. outbd., NiLocks trailer, \$900. 714-535-7461. C
Dog House, inside dimensions, 13x22x24", \$9. 213-645-2711. C
Tape Recorder, Sony, scientific mod. A.C.-D.C. portable w/bat. charger, \$40. 213-376-5290. C
TV, b&w, 23" Dumont, mahogany console, FM radio, \$50. 213-321-0020. C
TV, color, 19" Emerson, portable, \$250. 213-644-3272. C
Pups, poodle, white, AKC, small std., \$95. 213-378-6621. C
Aircraft Parts, Homebuilt CA-65, 2-seater, never used, \$55. Box 201. C
Heater, gas, wall-type, vented, Glen Aire, 11,900 b.t.u., \$20. 714-673-0104. C
Encyclopedia, American Peoples, never used, w/shelf & yearbooks, \$50. 213-396-6739. C
Sailboat, 9 1/2' dinghy-type, sand dolly, cartop carrier, \$150. Box 202. C
Outboard Motor, 1959 Mercury Mark 55, 35 h.p., \$35. 213-679-4400. C
Mobile Home, 20x43, 2-bdrm., bath, skirting, awnings, porches, landscaping, \$10,500. 213-324-8406. C
Book, Central Park Country, Sierra Club, \$17.50. 213-378-1863. C
Hi-Fi Equipment, Garrard AT 60 turntable, spkrs. & encs., \$40. 714-968-2780. C
Tires, 4 Carnegie Classic Ultra Premium, 855-14, \$5 ea. or \$20. 213-676-1983, 213-676-9989. C
Motorcycle, 1966 Harley-Davidson 74, rebilt. eng. fairing, extras, \$1,150. 213-672-4231. C
Motorcycle, 1966 Honda, 305 cc Scrambler, extras, \$325. 213-370-0884. C
Bicycle, boy's 20", \$10. 213-326-5979. C
TV, 23" Admiral console, blonde wood, \$39. 213-323-9887. C
Ski Boat, 17' Schlada Deep Vee, 283 Chev., \$2,800. 213-545-4783. C
Motorcycle, 1967 Yamaha, 100 cc, GYT kit, extras, \$300. 213-532-7175. C
Cabin Cruiser, 18', trailer, 80 h.p. elec. start motor, \$1,700. 213-672-2118. C
Racing Slicks, Casler, 950x14, \$40. 213-675-9500. C
Drum Set, base, snare, tom-tom, cymbals, hi hat, \$90. 714-838-3040. C
Tool Box, Gerstner & tools, all or part, \$300. 213-329-9809. C
Ring, wedding & engagement, interlocking, 1/4 carat center stone, white gold, \$300. 213-679-7643. C
Tent, 9'x12', sewn-in floor, screens, o/side poles, \$70. 213-325-4946. C
Apt, 4-unit, 1 block from Norair, 4 yrs. old, low dn., \$64,900. 213-675-5181. C
Utility Trailer, w/enc. box, \$60. 805-482-3429. C
Changer, 1968 Greeves, many extras, \$725. 213-325-3494. C
Motorcycle, 1966 250 Ducati Scrambler, 5-spd., \$450. 213-833-4933. C
Freezer, 500-lb. upright, ideal for hunter or fisherman, \$25. 213-375-6114. C
Trumpet, student model, \$30. 213-457-2949. C
Mini Bike, 4-cyl. 3 h.p. Clinton eng., \$85. 213-679-6610. C
Lawnmower, Toro Air Flow, \$15. 213-324-8758. C
Trailer, 1959 Kenskill, 19', lge. refrig., cpt., awning, extras, \$800. 213-677-4342. C
Ping Pong Tables w/net, \$15. 213-324-4817. C
Air Cooler, w/rolling stand, McGraw Edison, \$27. 213-377-3806. C
Tires, 5 8.45x15 Goodyear Suburbanite, tubes & rims, never used, \$25 ea. or \$100. 714-828-7873. C
Trailer, 15', elec. brakes w/control, sleeps 4, misc. equipment, \$550. 714-639-3741. C
Receiver, Hallicrafters S85, shortwave, \$25. 213-426-4060. C
Cabin Cruiser, 22" Owens, w/4-whl. elec. brakes trailer, \$1,500. 213-677-3858. C

Wanted to Buy
Camper, 8' cabover w/rear dinette. 213-676-8892. D
Fathometer, small, for outbd. boat, prefer over 200' capability. 213-676-6711. D
Carburetor & manifold, 4-bbl. to fit '65 Mercury 390 eng. 213-679-7840. D
Ceramic Kiln, good condition, 24" to 36" opening. 714-897-8447. D
Tent Camper, good condition. 213-324-7869. D

Wanted to Buy
Jeep, 4-wheel drive, in good condition. 213-370-7749. D
CB-20 for use by Boy Scout emergency rescue unit. Box 203. D
Helmetts, WWI & WWII Japanese, Italian or British. 213-375-4312. D
Meat Grinder, 1/4 to 1 h.p. motor, usable condition. 213-676-1839. D
Coins, Barber dimes 23¢ ea.; Barber quarters 39¢ ea.; Barber halves, 90¢ ea. 805-482-3893. D
For Trade
Freezer, 18.5 cu. ft. upright, used 18 mos., trade for piano in good condition. 213-772-4000. E

Free (To Be Given Away)
Pups, 6 wks. old, male & female, dachshund & poodle mix. 213-542-3443. F
Fire Wood, you cut it. 213-672-3460. F
Pups, mixed Alaskan huskie-miniature collie, male & female, 5 wks. old. Box 204. F

Rentals Offered
Apt, 2-bdrm., 2 baths, pvt. balcony, subterranean parking, Inglewood, \$165. 213-541-1226, 213-678-4632. G
Apt, 2-bdrm., dps., cpts., pool, unfurn., \$135 & up. 213-325-2512. G
Apt, Redondo Bch., cpts., dps., bltins, 1-bdrm., \$120-\$130; 3-bdrm., 2 baths, \$180. 213-372-8835. G
Apt, 2-bdrm. unfurn., 1 child o.k., cpts., dps., bltins, near Northrop, \$135. 213-765-0100. G
Cabin, Green Valley, \$25 w/end; \$45 wk. 213-324-0649. G
Cabins, Lake Gregory & Crestline, sleeps 6, \$25 w/ends; \$60 wk. 213-331-2040. G
Cabin, 2-bdrm., f/place, bath, sleeps 8, Big Bear Lake, \$35 w/end; \$60 wk. 714-525-5250. G
Cabin, Lake Arrowhead, North Shore, 200 ft. from lake, \$100 wk. 213-375-2255. G
Sleeping Room, pvt. bath & entrance, furn., utilities pd., near Northrop, \$50 mo. 213-676-7328. G
Apt, 2-bdrm., cpts., dps., bltins, all elec., closed gar., 5 min. to P.V., 20 min. to Hawthorne, \$135 unfurn.; \$155 furn. 213-375-9397, 213-375-2091. G
Apt, 1-bdrm., furn., subterranean parking, pool, bltins, dps., cpts., pvt. deck, Lawndale, \$150 mo. 213-644-4235, 213-670-6084. G

Child Care
Child Care wanted, my home, 3 p.m.-12 midnight, average 5 days wk. 213-532-5614. I
Babysitting, my home, 1 block from Ramona School. 213-675-1953. I
Child Care offered, Gardena. 213-327-2689. I
Personals
Ironing, my home, \$1 hr. 213-379-2156. L
I wish to express my sincere appreciation & gratitude to all my friends at Northrop for the flowers, cards, & concern during my recent prolonged stay in the hospital. R. W. "ROBBIE" ROBINSON. L
Engineering information wanted of historical nature of all Northrop Flying Wings. 213-370-7092. L
Everyone's kindness & concern for our son, Bob, was sincerely appreciated. The portable TV gave him his happiest moment since the accident. MR. & MRS. SHELDON SCHWARTZ. L

Collecting Cars Poses Big Storage Problem for Adams

Amos D. Adams, jr., is looking for a garage. He needs one to store the 11 automobiles he owns. The cars are not exactly antiques and none of them are rare. "I get them from wrecking yards," says Amos, an engineering technical assistant in the Electronics Mechanical Development Laboratory. "Being a mechanic and machinist it's a hobby right now, but once I find a garage I hope to fix the cars and sell them for a profit."

Included in his collection are four Citroens, the French automobile Amos describes as "the most highly engineered car in the world;" four German Borgwards, popular in Germany, but relatively scarce in the U.S.; one 1959 Simca; and two Hudsons, a 1954 sedan and 1938 coupe.

Amos estimates he has owned more than 30 cars since he bought his first in 1936 — a 1928 Model T Strip. "I used to have a 1932 Cadillac V-16," he said. "I drove it for about 18 months until the war started. Gasoline was rationed then and that Cadillac got only seven miles to the gallon so I had to sell it."

Amos said his wife doesn't

Rides and Riders
Rides Wanted
7 a.m. — 3:42 p.m.
Lennox & Hawthorne Blvd., Inglewood. A. M. Mellen, Norair ext. 2568, 213-671-3702.
Heil & Golden West, Huntington Beach, Tom Bowen, Norair ext. 2811, 714-847-8140.
8 a.m. — 4:45 p.m.
Leffingwell Rd. & La Mirada Blvd., E. Whit-tier. Ernest J. Keraly, Norair ext. 2563, 213-944-5946.
Santa Ana, Costa Mesa Vicinity. J. G. Brou-sard, Norair ext. 1542, 714-838-1358.
Jonbra Blvd. or Artesia Blvd. & Harbor Fwy. /icity, Compton. J. Yvonne Boggus, Elec-tronics ext. 495, 213-632-8677.
Rides Offered
7 a.m. — 3:42 p.m.
Heil & Golden West, Huntington Beach, Tom Bowen, Norair ext. 2811, 714-847-8140.
8 a.m. — 4:45 p.m.
Leffingwell Rd. & La Mirada Blvd., E. Whit-tier. Ernest J. Keraly, Norair ext. 2563, 213-944-5946.
Santa Ana, Costa Mesa Vicinity. J. G. Brou-sard, Norair ext. 1542, 714-838-1358.

Personals
I wish to express my sincere appreciation to the Contract Management dept. for the ex-pressions of sympathy during the loss of my mother, Mrs. Catherine Nagle. KATHLEEN BABCOCK. L
Thanks to all of you for being so helpful to me & making my years at Northrop so pleasurable, also for the retirement dinner & lovely gifts. ULNA PRICE. L
For Sale or Trade
T-Bird, 1956, new eng. & trans., p/s, p/b, \$1,650 or trade for 1964-1965 Lincoln Continental. 805-495-6503. M
Boat, 12' alum., 3.5 Chrysler motor, \$300 or trade for dirt bike, under 160 cc. 714-639-1629. M
Stereo System, Heathkit, amp., AM-FM tuner, Never Mar cabinet & spkrs., \$195 or trade for good practice piano. 213-372-0129. M
Reducing Machine, Stauffer deluxe, \$60 or trade for dishwasher. 213-675-6020. M

TENNIS CLUB

The NRC Tennis Club is plan-ning its 1969 slate of events and invites interested participants to contact Commissioner Hollis Smith through Organization 6413, zone 60 at the Electronics Divi-sion's Hawthorne facility.

IS IT NEWS?
CALL EXT. 4273
HAWTHORNE

Collecting Cars Poses Big Storage Problem for Adams

mind his hobby too much. "Her only concern is that she doesn't want our son to become a me- chanic.

"All I know is that with the 11 cars I have, plus the two fam- ily cars, our household could sure use another mechanic."

MODEL AIRPLANE EVENTS SCHEDULED

The NRC Model Airplane Club has scheduled two important events for Sunday, March 2, at Sahara West, El Segundo and Sepulveda, according to Earle L'-Homme, commissioner.

The first event will be the jun-ior and senior American Model Association Delta Dart contest from 8 to 10 a.m. The second will be divided into two parts. The first is a radio-controlled bomb drop and spot landing. The sec-ond is the relay race. Both events will take place between 9 and 12 noon.

The contests will be preceded by the regular meeting on Wednesday, February 19 at 7:30 p.m. in the NRC Clubhouse, 12626 Chadron Street, Haw- thorne.

NRC

(Continued from page 1)

vin Wiebe, Bible; Jack Kirkeby, Bridge; Otto Busler, Boating; Vi-to DePaul, Bowling; Harry Dent, Camera; Paul Engstrom, Coin; Harry Witmore, Desert Rats; Ed Robertson, Deep Sea Fishing.

Art Bowser, Fresh Water Fishing; Gaylord Miller, Gem and Mineral; George Baldwin, Golf, men; Molla Clark, Golf, women; Charles Fox, Gun; Julian Bloom, Radio; John Burke, Softball, men; Elena Huerth, Softball, women; Jack Flannagan, Table Tennis; Al Fredette, Trailer and Camper; Randy Lee, Travel; Ann Dean, Women's Club; Chuck Beezley, Pocket Billiards; and Frank McNabb, jr., Ski.

Representatives include Jack Kinzer, Harry Smith, Chet Guzinski, Maxine Hopper, Leo Parsons, and Joe Porter.

Special guests included, in addition to the speaker, Mr. Quayle, R. A. Schultz, Operations manager, Anaheim department; E. J. Noonan, director, Industrial Relations; and K. G. Terry, supervisor, Employee Relations.

EMPLOYEE'S SON WINS SCOUT KUDOS

Dale Schneeberger, 14½, has passed the Eagle Scout Board of Review, according to his father, Fred, service engineer in the Electro-Mechanical Division's Product Support group.

He earned 21 merit badges—11 required and 10 optional—to achieve the top honor in scouting. He is also a member of the Order of the Arrow. Dale joined the Cub Scouts when he was eight and the Boy Scouts when he was 11. He is a member of Troop 68 in Westminster. The troop is sponsored by St. Luke's Lutheran Church.

Dale is a senior instructor of his troop and hopes to continue in scouting to become a scoutmaster.



RECOGNITION of work of NRC commissioners and representatives highlighted annual Installation Dinner above. Tom Quayle, standing right, confers with Bill Kieffer, past president, as emcee Art Eckel looks on.

NOW IN EFFECT

New Compensation Programs Changes

Several improvements in the Northrop Employee Compensation Programs initially announced last November, became effective February 1.

The following changes made are part of a continuing upgrading process designed to maintain pay levels and benefits in Northrop's historical position among the leaders in the aerospace industry:

• **INCREASED COMPANY-PAID LIFE INSURANCE AND AD&D INSURANCE** — The Life Insurance and Accidental Death and Dismemberment Insurance (AD&D) which are provided at no extra cost to hourly and salaried employees have been increased from \$5,000 to \$7,500. The previous schedule of contributory life and AD&D insurance remains the same.

• **MAJOR MEDICAL PLAN** (Applicable to hourly and salaried employees) — The period for establishing the \$100 deduct-

ible in each calendar year in six months has been increased to the full calendar year for both employees and dependents.

• **MATERNITY COVERAGE** — All pregnancies of employees and dependent wives commencing after February 1, 1969, will now be considered under the basic plan as any other health claim. As a result the previous maximum allowances for maternity cases will be removed and the regular hospital and surgical allowances will apply.

• **BEREAVEMENT PAY** — This benefit, for hourly and salaried nonexempt personnel, has been increased from two to three working days off with pay in the event of a death in the employee's family. The interpretation of "Family" has also been expanded to include stepfather, stepmother, stepchildren, half and stepsister, and half and stepbrother.

• **MILITARY SERVICE DIFFERENTIAL PAY** — This new plan provides that an hourly or salaried employee who is a member of a reserve component of the U.S. Armed Forces and is required to enter annual training duty or temporary special service be paid his normal straight-time earnings — minus the pay he receives from the State or Federal government to a maximum of 10

NRC Basketball Team to Enter Industrial League

The NRC Anaheim basketball team has been accepted into the Anaheim Parks and Recreation Department's Industrial League and will play 10 games this season, according to Don Ross, team commissioner.

The first four games against Kinney Air Conditioning, Disneyland, Alpha Beta, Cone Brothers and L. B. Penhall have already been played.

The next scheduled games are February 19 against Kinney Air Conditioning at Loara; February 26, a return game with Disneyland at Anaheim Boys' Gym; March 5, Alpha Beta, Loara; March 12, Cone Brothers, Loara; and the final game is March 19

against L. B. Penhall at Loara.

Those participating in the opening game were Duane Baptiste, Gary Smith, Mike McGuire, Don Ross, Mike Larsen, Al Difriscchia, Wally Harrill and Cliff Watkins.

Anaheim Donors Meet Assigned Blood Bank Goal

The blood bank conducted at the Electro-Mechanical Division, Anaheim, by the American Red Cross was a complete success, according to Esther Jones, Division industrial nurse.

"A total of 225 volunteers signed up to help us," Miss Jones said. "We collected 160 pints of blood and met our assigned goal."

Miss Jones expressed her appreciation to all who signed up. "We regret that we could not accommodate all volunteers," she said. "However, we are planning another visit from the Red Cross Blood Bank in July and hope those we could not accept this time will again cooperate with us."

Blood banks are held at Anaheim every six months, and have reached their assigned goals every year. "This has been possible only because of the fine cooperation of all our Anaheim personnel," Miss Jones said.

RADIO AUCTION SET

The Anaheim NRC Radio club is planning an auction of old radios and parts at its 24 February meeting, according to Julian Bloom, commissioner. It will be held at the NRC Clubhouse on Valencia, beginning at 7:30 p.m.

Desert Meetings Planned By Trailer-Camper Club

Future meetings of the NRC Trailer and Camper Club, Electro-Mechanical Division, will be held under the open skies with the desert sand for chairs, according to Al Fredette, newly elected club commissioner.

"We found that more members come to our campouts than to our regular clubhouse meeting," Al said. "So that is where we'll have our meetings now."

The next will be at the Indio Date Festival on February 22.

In another policy change in the club, members will now pick

locations for future campouts. "Each member will be host or hostess for each month's trip," Al reported. "They will make the decision where to go and what to do for that month's campout. The host's decision will not be challenged by the rest of us."

The last campout drew 22 adults and 15 children in 10 campers and two trailers. "This was a great showing," Al said. "But we want more. If you love to travel, we'd love to have you in the club."

Call Al Fredette at Anaheim ext. 318 for details.

Anaheim NRC Bridge Club Alive Again; Restrictive Rules Dropped

The NRC Bridge Club at Anaheim has been reactivated under direction of Jack Kirkeby and Nelson George. The club, inactive for the past nine months, was first organized here ten years ago.

The club has dropped its American Contract Bridge League charter. This will eliminate restrictive rules and permit the club to give larger and more numerous prizes.

"We intend to generate more contests," Mr. Kirkeby said. "Also we anticipate arranging matches between clubs in other industrial companies. Our aim is toward a

more friendly atmosphere and intend to make the club more attractive to those with less experience as well as for the seasoned player."

Partnerships are desirable, but single players will be accommodated.

"Everyone is welcome at any time," Mr. Kirkeby said. "However, it will help us if we are notified by phone before you come."

Meetings of the reactivated club are held every Thursday at the NRC Clubhouse at Valencia and Brookhurst in Fullerton. The first meeting was held January 9.



WHO'S THIS? Pierre ze great artiste painting in Paris? Looks like him, but the rolled copy of the Northrop News atop the easel betrays the painter as our own Bob Peck from Electro-Mechanical Division's Graphic Arts. Bob is having a one-man show during the entire month of February at the Anaheim Art Association Gallery, 2660 West Broadway, Anaheim. Bob will show 25 new canvases in both oil and watercolors. Copyright used by permission of Frank W. Pierson.

Former Security Coordinator in New Assignment

Wayne Hardy, who formerly coordinated night shift Security activities at Electro-Mechanical Division is now supervisor of Fire and Plant Protection at Northrop Carolina.

Mr. Hardy, a plant protection specialist and a registered first aid instructor, also trained contract security personnel on the Anaheim second shift. He was with Nortronics since 1966.

E. T. Jessick, chief, Electro-Mechanical Security and Plant Protection, said Mr. Hardy's transfer to Northrop Carolina was an example of the excellent cooperation between Northrop units in providing promotional opportunities for its personnel.



Mr. Hardy

NORTHROP NEWS

ELECTRO-MECHANICAL DIVISION EDITION

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OUTGOING PRESIDENT Neal McKenzie passes his gavel to the new Northrop Management Club (Electro-Mechanical and Electronics) President Chuck Shelly. With them, from left, are Lee Hausman, Bob Abel, Roy Graboff, A. E. Blythe, G. A. Nelson, John McIntyre and John Burke.

Management Club Hears Test Pilot John Moore

New officers of the Northrop Management Club — Electro-

Northrop Shares Army MARS Design Contract

Northrop Huntsville, Support Operations department, Electro-Mechanical Division, shared with five other companies in Army contracts awarded for concept design studies for a new Army Multiple Artillery Rocket System (MARS).

The Northrop contract was for \$468,200 of the total \$2,675,656 package awards. Others included the Chrysler Corporation, The Boeing Company, LTV Aerospace Corporation and Martin Marietta Corporation.

Six-Month Study

Terms of the contract specify that each company will perform six-month studies on developing the intermediate range bombardment system for the 1970's.

From these contractor studies, the Army will select a baseline concept to proceed with into a contract definition phase.

MARS is intended to be a simple, rugged, reliable, low cost tactical artillery rocket system. It will be the Army's first attempt to combine multiple launch of rockets with some degree of guidance.

Present Army concepts envision the weapon system as being a mobile launcher carrying several rockets which can be fired in rapid ripples.

Program Leaders

Bob Lindstrom, assistant manager, Northrop Huntsville, has been named program manager for Northrop's study. Dave Hammark, director, Systems section at Northrop Huntsville, has been selected as project engineer for the study.

The MARS program is under management of the MARS II Product Office at the Missile Command.

Mechanical and Electronics Divisions—were introduced at the February dinner meeting and famed test pilot, author and Apollo test manager John M. Moore, jr., was guest speaker.

Outgoing president, J. N. McKenzie introduced the new president, Chuck Shelly, Hawthorne. Mr. Shelly then introduced the other newly elected officials, Bob Abel, vice president, Lee Hausman, secretary, and Roy Graboff, treasurer, all from Palos Verdes; and John Burke, Anaheim, sergeant-at-arms.

Following the introduction, Mr. Moore spoke from first-hand authority on "The Lunar Voyage." Since 1963 he has been manager of the Apollo check-out operations for North American Rockwell at Cape Kennedy.

Before joining the Apollo program, Mr. Moore was a Navy combat pilot and test pilot for North American. His talk to the Northrop Management Club concerned the magnitude of the Apollo program. He described the difficulties of putting a man on the moon and returning him to earth.

Al Arroues' Suggestions Tops for '68

An idea he first thought too simple to submit to the Employee Suggestion Award program made Al Arroues the top suggester for 1968 at the Electro-Mechanical Division, Anaheim.

Mr. Arroues, Maintenance mechanic with the Industrial Engineering group, was awarded a total of \$2,567 for seven suggestions made during the year, an average of over \$200 a month.

His largest award was for an idea to restore discarded fly wheels for presses. His first reaction was that the idea was too simple to submit.

"Then one of my friends said, 'Go ahead. It might be worth something.' I did and received my largest award—\$2,000."

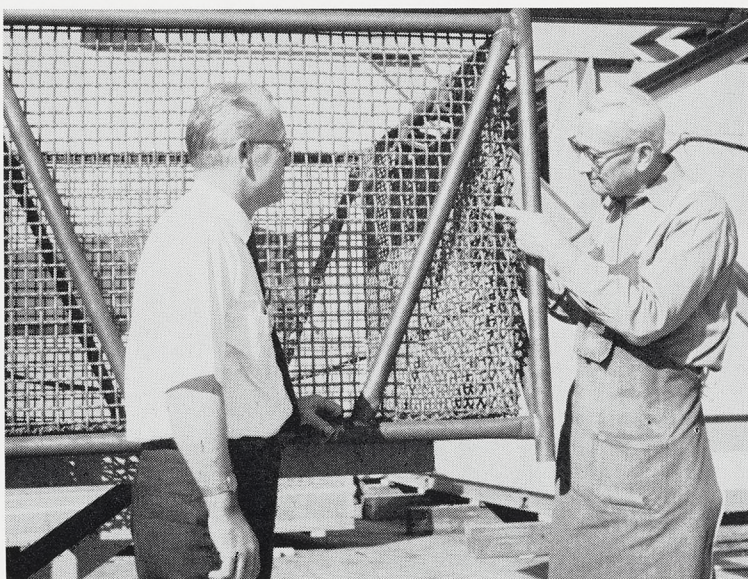
Al has been with Northrop for 17 years, but it has only been the last two years that he has participated in the Suggestion Award program.

"I had ideas before," he said, "but I never thought to submit them until Larry King, the Suggestion Award administrator, started encouraging us to make submissions. It saddens me to think of the money I must have lost all these years."

Al has no particular formula for getting his award-producing ideas. "In my maintenance work," he said, "I see many problems and I like to try and work them out."



Mr. Arroues



CHECKING OUT the basket on the new heat treat furnace are Hugh Zebarth and Henry Bryan. Furnace is expected to save \$12,000 over previous operations for Electro-Mechanical.



HONORED FOR SERVICE to the United Fund Campaign are from left, Frank McNabb, Dick Stuffer, and C. D. Leavenworth.

Community Fund Services Bring Honors to Northrop

The Northrop Electro-Mechanical Division and two of its personnel received awards for participation in the 1968 Anaheim Western Community United Fund Campaign.

Frank McNabb, director of Quality Management, received an outstanding service award for his campaign work. Doug Leavenworth, chief, Product Support, also was given an outstanding service award for his duties as division chairman. He is also a member of the board of directors.

Dick Stuffer, chief, Personnel Administration, accepted a Ten

Year Campaign Award presented to all division personnel for outstanding community service in participating in the campaigns for the last 10 years.

The division participates in the program in three ways, according to Mr. Stuffer. This is through the AID program, as a member of the business community, and as active members of campaign committees.

The 1968 Anaheim Western Community United Fund campaign was under the chairmanship of Mayor Calvin Pebbles of Anaheim.

New Aluminum Heat Treat Furnace Will Increase Efficiency at Anaheim

A new bottom-drop aluminum heat treating furnace is expected to save almost \$12,000 over previous operations at the Northrop Electro-Mechanical Division, Anaheim, according to Hugh C. Zebarth, general foreman, Sheet Metal and Welding area.

In operation the metal parts being treated are suspended in a wire basket and raised into the furnace by an air-operated lift. They are kept at constant temperatures ranging from 860 degrees to 1000 degrees F. They are then lowered into water to temper the material. The delay between removal from the furnace and quenching in water cannot exceed 10 seconds.

Operation of the new furnace is handled entirely by Henry Bryan, a certified heat treat operator who has been tempering metal parts at Northrop for 12 years.

The new furnace installation is a result of cooperation between the Production group headed by Grant Gunderson and the Industrial Engineering group, M. E. Skilling, chief engineer. Industrial Engineering made the facility analysis, research and recommendation for the furnace. The one previously in use had a small size and low heat range. This required sending 10 per cent of the work in progress to an outside vendor for processing.

The new furnace will generate savings by eliminating outside vendor charges, product losses from furnace overheating, costs caused by excessive care in process control, and additional expense caused by previously using split batches in the old furnace's limited space.

SECURITY SOCIETY APPOINTS JESSICK

Gene Jessick, chief, Security and Plant Protection, Electro-Mechanical Division, has been appointed a member of the Professional Criteria Committee of the American Society for Industrial Security.

Mr. Jessick, with four other members from other companies, will be responsible for encouraging young people to make industrial security a profession. They also promote interests in schools and colleges to include security in their curriculum and to develop model programs for college level security programs.

"We are trying to develop professionalism in the field," Mr. Jessick said, "and our goal is to establish a curriculum in major universities leading to a B.A. degree in business administration with an industrial security major."

NORTHROP NEWSMAKERS

Ollie Stewart, wife of **James Stewart**, Norair, is among the candidates seeking election to the Inglewood Unified School District Board. The election will be held April 1.

Otis A. Hobbs, Norair, turned out for a farewell party on the eve of his retirement well "pinned." Mr. Hobbs wore his Northrop 90-day, 3-year, 5-year, 10-year and 15-year service pins, plus Northrop Quality Key and F-5 tie clasps.

Mildred E. Snell, Norair, received an unusual farewell gift this month when she terminated a 27-year Northrop career with retirement. Her many friends presented her with a "money tree" to help finance her planned retirement travels.

W. W. Watson, Norair, has prepared a paper titled "A Real Time, High Temperature Jet V/STOL Test Facility" for presentation at the AIAA's Third Flight Test, Simulation and Support Conference March 10-12 in Houston, Texas.

Ron Koller, Joe Akers, Wayne Howell and **Dennis Elder**, all Norair, have received commendation letters from Porterville State Hospital for their services as drivers and loadmasters in transporting two truck loads of Christmas gifts to the hospital from Los Angeles. Norair makes trucks available for the trip, the drivers donate their own time on Christmas Eve.

Jack Morrow, Norair, was a guest speaker before a junior class in metallurgy at Don

Bosco school this month. He discussed "Industrial Safety."

R. L. Terchek and **E. A. Lauchner**, both Norair, have prepared a paper titled "Stress Corrosion Cracking Prevention for Aluminum Alloys" for presentation at the ASM WESTEC conference during March in Los Angeles.

Gus Duke, Ventura, is a technical session chairman for the 15th annual meeting of the Institute of Environmental Sciences April 20-24 at the Anaheim Convention Center. Mr. Duke's session topic is "The Undersea Environment." **C.E. Gist** and **H.P. Hutchins**, both of Brown & Root-Northrop, will present technical papers. Conference theme is "Man In His Environment."

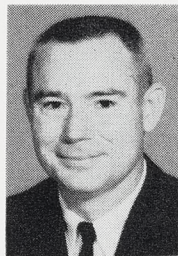
Young Executives Selected To Attend Sloan Program

Two young Northrop executives have been selected to participate in the 1969-70 Stanford Sloan Program.

They are **Charles P. Hass**, director of General Accounting and



Mr. Hass



Mr. Scott

Policy at Ventura and **Frederick M. Scott, Jr.**, director of Business

Administration at the Northrop Corporate Laboratories in Hawthorne.

Up to 30 young executives from across the country are chosen annually for the intensive nine-month program of professional and personal development at Stanford University.

The men were recommended for the program by **Welko E. Gasich**, vice president and Ventura general manager, and **Dr. Donald Hicks**, vice president and manager of NCL.

It is the first time two Northrop men have been chosen for the honor in the same year. The session begins in September and ends in May 1970.

Mr. Hass, 33, joined Northrop four years ago. He was on the staff of the Corporate controller until August 1967, when he was promoted to the Ventura post.

He holds a bachelor's degree in business administration from Loyola University, Los Angeles, and is a Certified Public Accountant.

Mr. Scott began his Northrop career five years ago at Ventura as a project engineer. He is 38 and has been with NCL since it was formed in August 1967.

It will be a homecoming, of sorts, for **Mr. Scott**. He graduated from Stanford with a bachelor's degree in mechanical engineering and has done graduate work in business administration at UCLA.

Both men live in Thousand Oaks.



AL FOEDISCH demonstrates use of his invention, the NORPEEN tool for removing stress in metal borings.

Northrop Affiliate to Lay Cable Completing Globe-Girding System

Next month, if sea and ice conditions permit, work on the final leg of a project to circle the world with terrestrial telecommunications lines will begin.

With completion of this project in May, it would be possible, for the first time, to carry on around-the-world voice conversations via telephone by sea and land line.

A Northrop affiliate, United States Underseas Cable Corporation (USUCC), will lay the final 500-nautical-mile cable tying together the world-girding system. USUCC has also laid other sections of cable in the system.

The total project includes a connected ring of cables extending 20,000 miles.

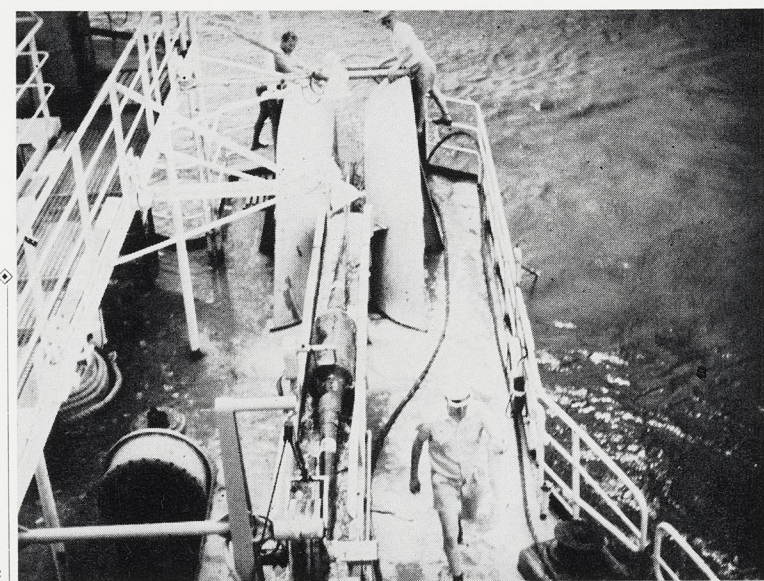
Closing this circle is the last leg stretching from Japan to a

point near Vladivostok, Siberia, U.S.S.R. The total circle now ties together Tokyo, Guam, Midway, Hawaii, San Francisco, New York, London, Paris, Copenhagen, Helsinki, Warsaw, Moscow and Vladivostok. Across the frozen stretches of Russia, the lines follow the historic trans-Siberia railway.

The cable link USUCC is laying is a mere 1 1/4 inches in di-

ameter. However, it is capable of handling up to 160 telephone calls simultaneously. It also can carry scores of data links, teleprinter connections, facsimile and wirephoto transmissions and broadcast circuits.

This job represents the 11th ocean cable link to be built by USUCC, and brings the total of cable system projects installed to over 4,500 miles.



DIFFERENT NOW—Clothing of crew members aboard cable laying ship indicates better climate than anticipated next month as U.S. Underseas Cable Corporation, a Northrop affiliate, begins task of connecting Japan with Siberia as final leg in an around-the-world telecommunications line.

Tool Solves Industry-Wide Stress Removal Problem

A new tool, invented by Norair's **Al Foedisch**, will solve an industry-wide problem by hardening the surfaces of borings in metal castings used in aircraft.

The tool is being patented by Northrop and will be manufactured and marketed by a licensee, **BEMCO, Inc.**, Pacoima, California, under the trademark **NORPEEN**. The name comes from a combination of Northrop and peening which is a process of hammering which removes stress and at the same time seals the metal surface.

According to **Mr. Foedisch**, boring in metal forgings sets up stresses. If not removed, these stresses cause microscopic cracks whether or not the aircraft is subjected to high "G" forces. Moisture works in through these cracks to cause corrosion and finally leads to a breakdown from stress corrosion.

Stress areas can be removed

by peening. Unfortunately, the deep holes bored for bolts and rivets cannot be hammered in the normal blacksmith manner.

Too Much Time

An alternate method of solving the problem employed glass beads which were shot into the hole under high pressure. This involved the use of extensive peening equipment and in many cases could not be applied to critical areas on structures.

In 1966 the U.S. Air Force informed manufacturers that a better method to remove surface stress had to be found. **Mr. Foedisch** went to work on the problem.

An industrial engineer, he has 40 years of engineering experience, including 23 years with Northrop, plus schooling in the Metallurgical Engineering Laboratory of Columbia Steel, Pittsburgh, California.

New Approach

His solution to the problem was a cylinder that could be inserted in the borings. Inside the cylinder are hardened stainless steel balls which range in size from 1/16 inch to a size required for each individual size hole. A cam inside the cylinder rotates at 900 revolutions per minute. This causes the tiny balls to extend a minimum of .025 inch and pound against the inside wall of the hole. **Mr. Foedisch's** first test model of the **NORPEEN** was used to peen test holes. These samples were tested for 1,000 hours under sustained stress in salt spray in the Northrop Materials Sciences Lab.

The **NORPEEN** tools can be made in any size to fit any job. Twenty different sizes are presently being used in F-5 production.

The **NORPEEN** permits even (See **NORPEEN**, page 5)

Credit Union Shareholders Elect Board of Directors

Northrop Credit Union shareholders held their annual meeting this month in Hawthorne climaxed by the election of a board of directors and members to serve supervisory and credit committees.

Increased Sales, Earnings, Backlog Registered—Jones

Northrop Corporation's net earnings for the six months ending January 31 were \$7,947,000, an increase of 21 per cent over earnings of \$6,542,000 in a similar period a year ago, President **Thomas V. Jones** has reported.

Other comparisons of the two periods show: earnings are equivalent to \$1.63 per share, up 20 per cent from \$1.35 per share; sales and other income totaled \$254,460,000, up nearly 10 per cent from \$231,804,000; and order backlog stood at \$940,000,000, an increase of 30 per cent over \$722,000,000.

"It is significant," **Mr. Jones** said, "that although we have been known as primarily a defense contractor, now only about half of the present backlog represents business for the U.S. Government."

"We expect a continued upward trend of sales and earnings for the balance of the year," **Mr. Jones** said, "and we expect to meet our objective of an annual increase of 15 per cent in earnings per share."

Subsequently, the board elected Credit Union officers for the coming year and appointed office staff members, while the two committees selected chairmen.

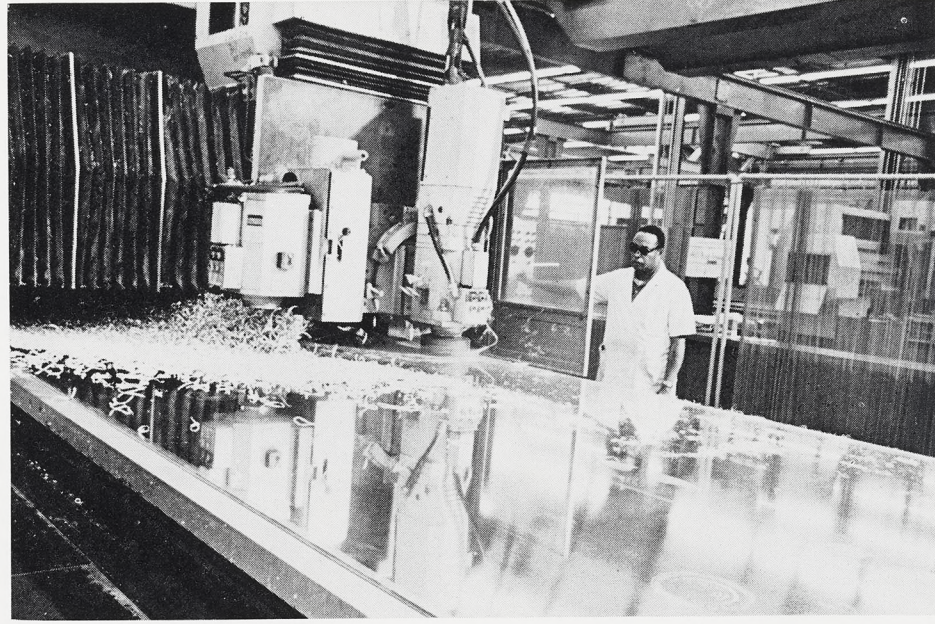
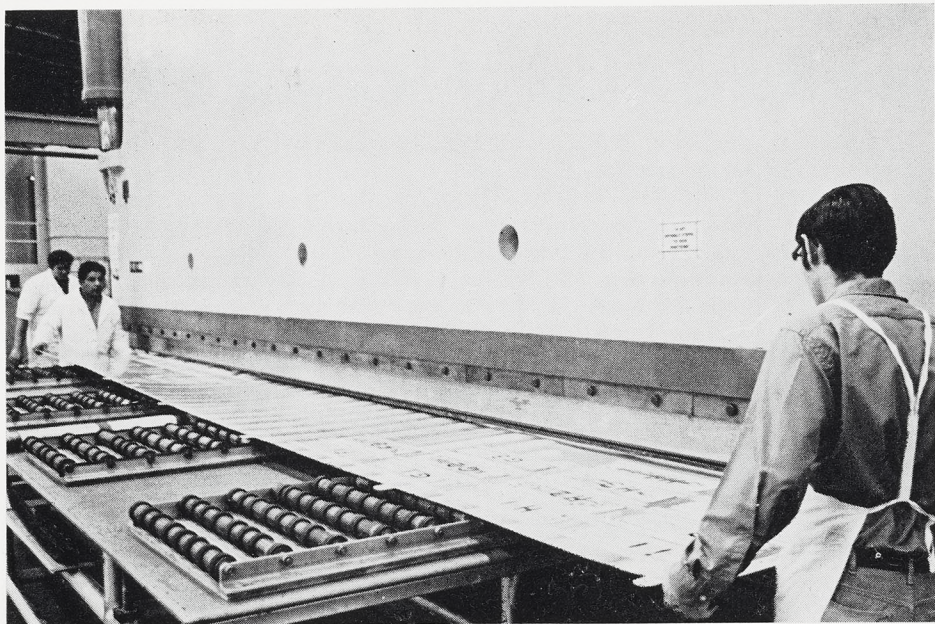
W. D. Schramm is the new Credit Union president; **R. D. Hampton** is the vice president; and **Mary B. Delaney** the secretary-treasurer. The three serve with a board of directors comprised of **L. L. Cripe**, **D. H. Grothe** and **J. J. Richardson** of Norair; **H. J. Grothmann** and **G. W. Thornton** of the Corporate office; and **J. S. Penrod** of Electro-Mechanical.

H. A. Ralles and **E. R. Foord**, both Norair, serve as chairman and secretary, respectively, of the supervisory committee made up of **J. J. Guiteras** and **W. J. Crown** of the Corporate office; and **A. W. Johnson** of Electro-Mechanical.

H. L. Cook, chairman, and **B. W. Trump** of Norair, serve the credit committee along with **W. H. Young** of Northrop Corporate Laboratories.

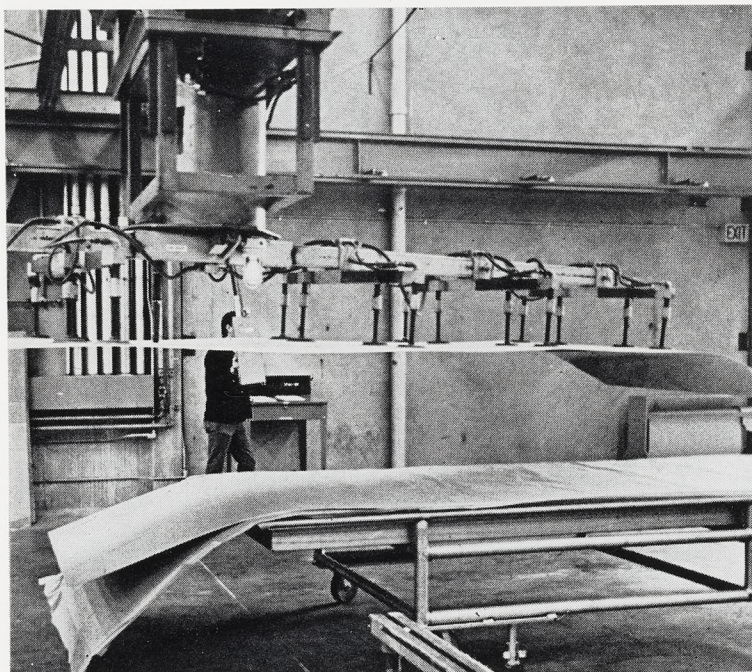
Appointed as office staff members were **W. H. Morris** and **Margaret Faubion**, loan officers; **Mr. Morris**, assistant treasurer; **Florence Montgomery**, assistant treasurer; **Catherine Walker**, cashier; and **Helen Walker**, membership committee chairman.

The main Credit Union has just completed a move into new quarters on the mezzanine immediately above the main Norair Mailroom.

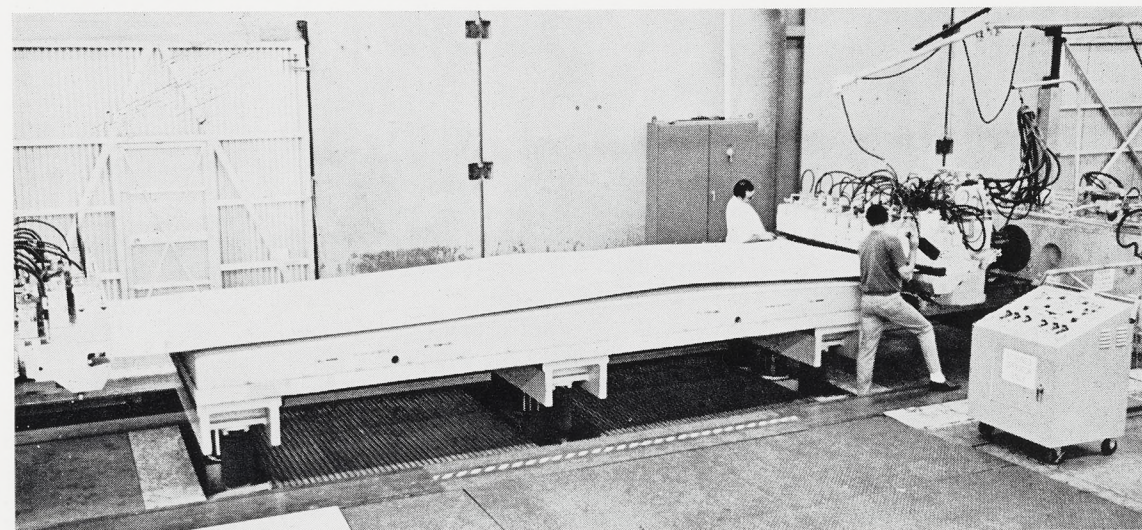


SKIN WORK—Charles Gann, Bob Luna and Dan Spear, above left, reduce skin stresses on braking device as Clifford Jack, above right,

operates router mill machining skin's "interior" side. Skins may weigh as much as 700 pounds each or as little as 75 pounds.

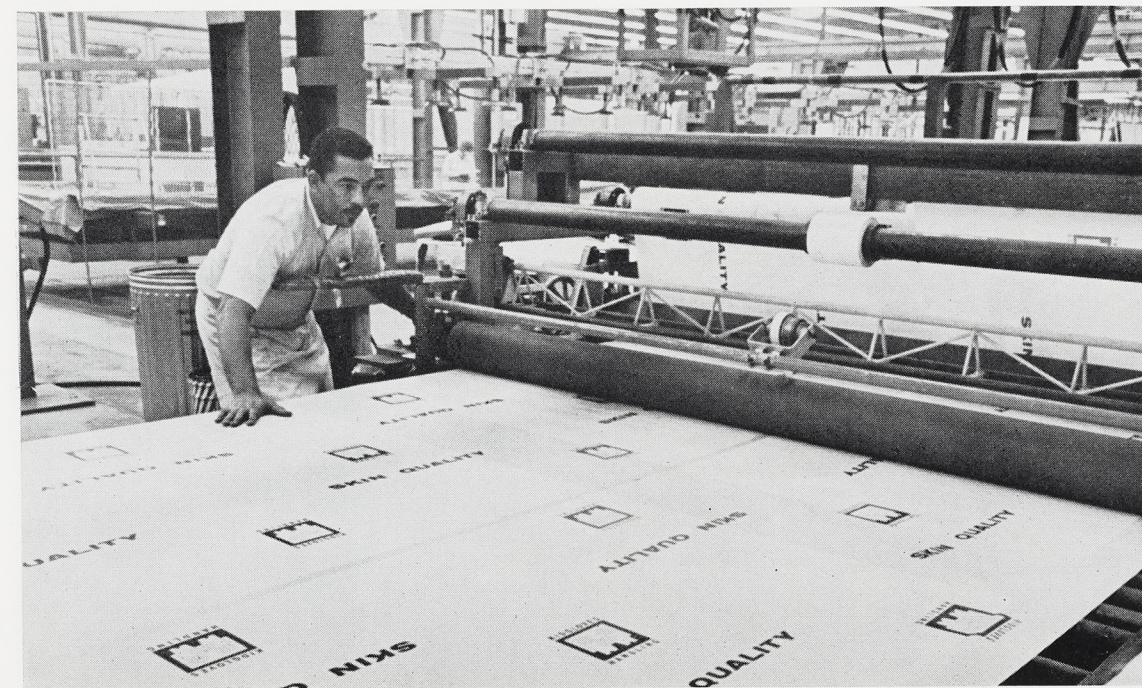


VACU-LIFT—Richard King, above, controls Vacu-Lift transporting skins. Below, Bernard Castro and John Sprester put skin on press which gives it contour in stretching.



FIRST STEP—Harold Davis, below, checks as skin receives Protex paper coating. At right, Frank Harrison guides machined skin on overhead track in storage area. Special transpor-

tation equipment used to move skins to main plant has built-in cushioning devices to assure finished skins arrive unmarred.



Tough, Tender Treatment Given World's Biggest Aircraft 'Skins'

Brute force combined with constantly careful handling best describes the work of the craftsmen at Norair's Quality Skin Fabrication Facility.

Probably the largest aircraft "skins" (aluminum sheets) in the world are processed with the latest technological advances to be used in the Boeing 747 fuselages.

TLC a Must

From the moment they arrive by rail at the Maricopa Street K-6 facility the skins must be handled very gently. The slightest scratches, nicks or dents on what will be the plane's exterior surface will ruin the expensive skins.

In charge of the 30-man crew in the 72,000-square-foot Tor-

rance building is Bob Tompkins, general foreman, a 27-year Northrop employee. He is assisted by Foremen Mel Smith, Ronnie Metro and Charlie Spear.

'Kid Gloves'

The skins requiring "kid gloves" treatment are an average 22 feet long and 7 feet wide, have a thickness up to 1/4-inch and may weigh 700 pounds. The lightest is .06 of an inch thick and weighs only 75 pounds.

An intricate overhead monorail system and complex array of mechanical equipment assures the quality necessary for the largest fuselage ever built for a commercial airliner.

Special Lift

The most innovative machine is a vacuum-lift operation. It is a series of rubber suction cups on an overhead assembly which lowers mechanically to transport the skins from one work area to another. The Vacu-Lift is also used in subsequent production stages at Norair's Plant One and Plant Three.

After receiving a thin coating of adhesive Protex paper on what will be the exterior side of the airplane and being trimmed to the required dimensions, the skins are subject to at least one of three

major processes:

—Stretching on a two-arm 350-ton press which may add as much as two to four inches to the total length.

—Rolling or braking to give it a curvature or alter its otherwise flat configuration.

—Machining on one of two large numerical-controlled mills (a third mill will begin operation in September).

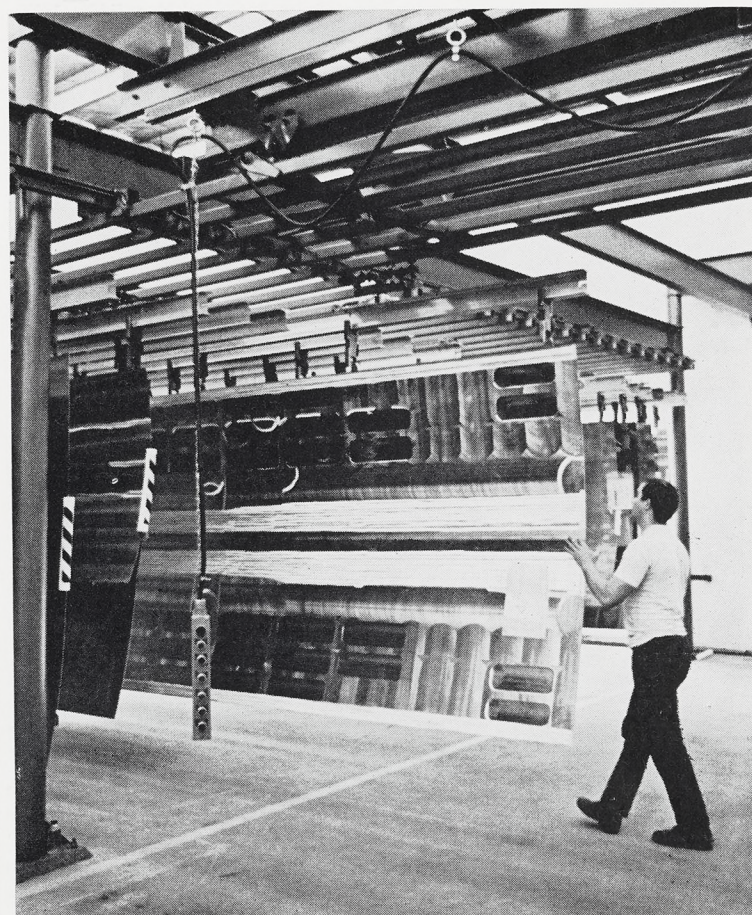
Protective Coat

Then the skins go through removal of the Protex paper, degreasing in a large tank and application of a protective coating which is sprayed on.

The skins are carefully stored in a vertical position with cushioning devices to keep them from touching.

The monorail system is virtually duplicated in the trucks which take the skins to Norair's Plant One; the skins are transferred in the truck from the K-6 track to the overhead track. When they get to Plant One a matching track receives them.

Maintaining the kid gloves treatment, the trucks also carry the cushioning devices assuring the skins a ride which would be the envy of a load of market-bound ranch eggs.



WHAT DO YOU THINK?

Would You Like to Go to The Moon With The U.S. Astronauts

James Archibald, press operator, Ventura:

I don't think so. I don't think we're ready for it yet. Maybe the time will come some day when we're ready. If that time comes, then I'll want to go.



Mr. Archibald



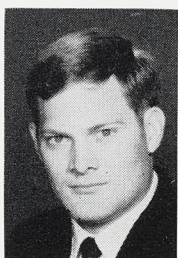
Mrs. LaPlante

Joyce LaPlante, Employment section, Electro-Mechanical:

I was asked the same question when I was in high school. Then I said yes. Now I'll have to say I prefer sitting under the moon to sitting on it. My baby daughter is too young to go with me, and I wouldn't go anywhere without her.

Gary Lottman, master scheduler, Norair:

No, I like to keep my feet on the ground. Besides, it looks so desolate up there. I guess I'll just wait here and look at the pictures when the astronauts return.



Mr. Lottman



Mrs. Peterson

Letha Peterson, accounting clerk-senior, Electronics:

I'd love it. I think it's the greatest thing in the world. I've never missed one of our space shots on television and when I see one I get the same feeling I did when I watched the Northrop Flying Wing takeoff at the Hawthorne Airport, 20 years ago.

India Fernandez, plastic layup, Ventura:

No, I don't think I would. I'm afraid of heights. And I don't know what they're going to meet up there. There might be monsters.



Miss Fernandez



Mr. Ramirez

Rudy Ramirez, stock clerk, Electro-Mechanical:

No, my 17-year-old son, Roland, would never forgive me if I went and he didn't. All he thinks of is space. He even has a telescope to study the stars and plan of where he wants to go. So, I'll bow out and let him have my place—that is, if anybody ever offers me a place.

Arnold Aguilar, supervisor, Reproduction, Electronics:

No, sir. I'm very happy here with my wife and three children. I like the green earth, but I think it would be a thrill to have my son go along and possibly be the first man on the moon.



Mr. Aguilar



Mrs. Miller

Nellie Miller, Shipping, Norair:

That would be quite an experience. I want to see what's up there and maybe say 'hello' to the man on the moon.

TED WARREN TO REPEAT STOCK LECTURE

The response of Northrop personnel in the Hawthorne complex to a stock market talk by Ted Warren was so great, NRC has booked a repeated appearance. Mr. Warren, author of the fi-

nancial best seller "How to Make the Stock Market Make Money for You," will speak at the NRC Clubhouse, Hawthorne, at 7:30 p.m. March 11. There is no charge.

FOR THE BIRDS

Jim Mihos Runs Afoul of Homing Pigeons

The birds gave "the bird" to Jim Mihos—giving him a head start and still beating him home in a fair race.

Jim, a senior contract administrator for Northrop's Electro-Mechanical Division, recently released five racing pigeons at Palos Verdes. The release was the first long distance homing test for the birds which belong to his son, Mike, 13.

"They took off in the direction of Catalina," Jim reports. "Since we live in Orange County, I thought they were heading home around the world."

But in spite of the apparent misdirection, the pigeons got straightened out. They made the 25-mile trip to arrive at their cote in the Mihos backyard in 45 minutes. This is better than Jim can do in his car.

He has been shown up by the birds at other times as well. As part of the young pigeons' training, Mike first released them at

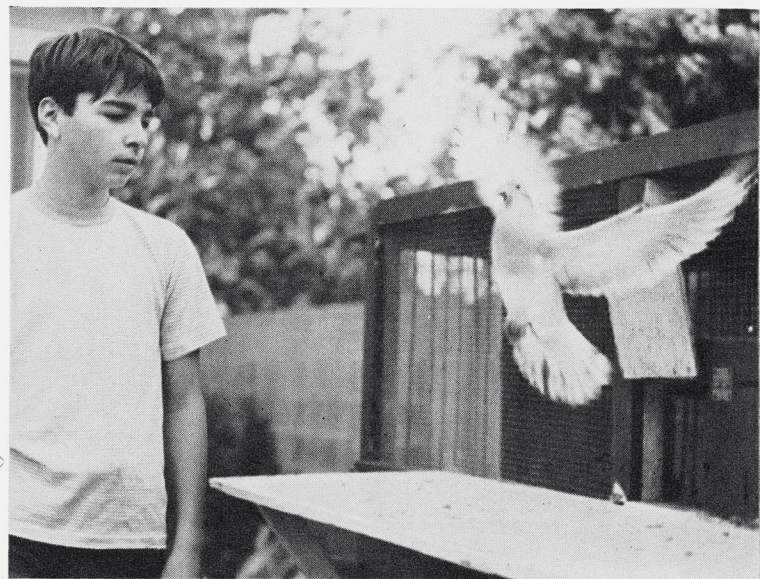
mealtime. They flew around the house and landed to eat.

The next step was to release them farther and farther from home. The 25-mile flight from Palos Verdes to Rossmore has been the longest so far. In every case the birds got home before Mike and Jim.

They next plan to take the birds above Bakersfield for a

200-mile test in preparation for entering them in the annual 600-mile California homing pigeon race.

Mike became a pigeon fancier in a rather natural sort of way. He borrowed some birds from a neighbor, kept them until they laid eggs, hatched the eggs and now is the proud owner of five himself. More are on the way.



MIKE MIHOS trains pigeon to beat his father home.

Sherry George Seeks Help for Service Center

Do you have a spare cookie or perhaps a bag of potato chips left over from lunch? Or if nothing to eat, how about a bit of effort devoted to a good cause?

If so, then Sherry George, Electro-Mechanical Division Accounting, is looking for you. Sherry, along with Gail Deakins of Page Court, is helping out on weekends at the newly opened Servicemen's Center of Orange County—a non-profit organization across Katella from Disneyland. The center, which depends upon donations and volunteer help to operate, provides servicemen with a place to relax, get information, or just talk to pretty girls.

According to Sherry and Gail, the center needs all kinds of volunteer help. "For Northrop people who have members of their families away in the service," Sherry said, "this is an opportunity to do for others what is being done for their own loved ones at other centers about the country."

DANCE PLANNED

Tickets for the NRC-sponsored Spring Dance are now on sale at all Personnel Activities outlets. The affair will be held at the NRC Clubhouse, Hawthorne, on March 22, from 9 p.m. to 1 a.m.

Tickets are \$3. The price includes all refreshments and a chance on a surprise door prize. Ticket sales are limited to 300. Music will be provided by the Bill Stroub Quintet.

Employee's Daughter to Reign As 'Miss 49er Engineer' at Cal State

Dale Ross, 20-year-old daughter of Frank Ross, Mechanical Design engineer, Norair Facilities, has been chosen Miss 49er Engineer by the Engineering students of the School of Engineering, California State College, Long Beach.



Miss Ross

The announcement was made in a double page spread in the college's

49er Engineer Magazine. According to the magazine she is a junior who likes to ride horses and is studying radio-TV while working at Disneyland.

Miss Ross' vital statistics, usually announced for queens, were hidden by the magazine in a complex engineering formula. Since only a graduate engineering student can solve the equation, and then only if he specialized in wind tunnel operations, it is presumed the engineers took this method of keeping their Miss 49er Engineer exclusively theirs.

Freeway is Too Dangerous For 130 mph Racing Buff

When Jim Coss hits 130 miles-per-hour on the race track, he feels safer than he does on the freeways.

Mr. Coss, an enthusiastic race driver who works in Radiation Effects at the Corporate Laboratories, is also modifying his engine with original ideas. He hopes to build a Triumph powerplant that will perform reliably at 7000-7500 rpm.

"On the track, drivers are much more competent," he said, explaining why he felt safer there than on the freeways. "You can fairly predict what a professional will do, but these clowns on the freeways don't follow any logic."

Big Differences

"Also, in the event of an accident, a racing car is equipped with safety devices seldom found in a street machine. Finally, all cars in a race are going the same direction."

For Jim, racing has been a 10-year dream. He finally made it come true early this year—not without some misgivings.

"When I was sitting on the grid waiting for the green flag on my first race, I thought, 'What in heck am I doing here!'" he said.

Despite these misgivings he went on to win his first race. The high point of this first season of racing came when he won his

class in the July 4th Six-Hour Enduro at Riverside.

The most surprising thing he found about competition driving is the extreme concentration required. "We drive at times in excess of 120 mph, which is moving right along for a four cylinder car. At competition speeds an error of two feet on entering a corner can be the difference between negotiating the turn or going off the track. It is the concentration required to drive the proper line that wears you out."

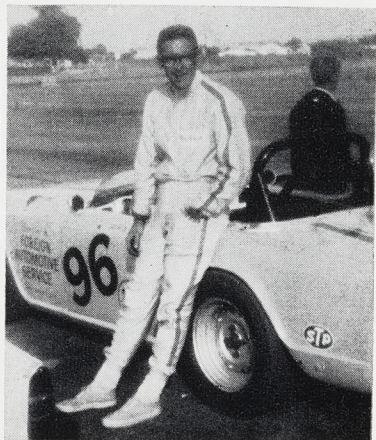
Stay Alert

He feels that this type of driving makes him a better driver on streets. "Competition driving teaches you to be aware of what is going on around you. That's a big help in any driving situation."

Jim is driving semi-sponsored, working with Jack and Colin Reid, who operate their own foreign car garage in Sherman Oaks. His TR-4, they feel, is probably the second fastest Triumph in this area. This doesn't satisfy them, however, and Jim is spending all the time he can on building a new experimental engine.

The Challenge

What original ideas they are incorporating, he won't say. But he feels that "if this engine performs the way we hope, we'll probably have the fastest TR-4 in the country."



Mr. Coss

Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale
Pontiac, 1968 Executive, 4-dr. h/top, p/s, p/b, a/c, Landau top, \$3,225. 213-547-4930.
Chevrolet, 1938 cpe., '68 350 Chev. eng. & Turbo-Hydro, many extras, \$1,500. 213-941-1477.
El Camino, 1966, V-8, 4-spd., \$1,750. 213-372-8157.
Mercury, 1966 Parklane, 4-dr., fact. air, p/b, p/s, radio, \$1,760. 213-676-9989.
Cougar, 1967, 428 Cobra Jet, 4-spd., a/c, p/b disc, \$2,600. 714-595-8891.
Mustang, 1967, 2+2 GT, 4-spd. trans., Michelin X radials, fact. air, \$2,195. 213-596-1333.
Station Wagon, 1957 Ford, 9 pass., auto. trans., \$200. 213-676-0055.
Volkswagen, 1967 Squareback, \$1,795. 714-523-2495.
Station Wagon, Volvo, 1961 eng., \$100. 213-328-8830.
Station Wagon, 1962 Chev., Bel Air, \$450. 213-377-0821.
Dodge, 1964 convt., \$895. 213-473-1568.
MG Midget, 1962, r/h, new paint, \$700. 714-827-7189.
Oldsmobile, 1957 98, p/s, p/b, r/h, a/c, \$300. 213-430-5027.
Pickup, 1965 Chev. w/fully equipped Pullman camper, \$1,595; camper only, \$395. 213-865-2036.
Dodge, 1966 Charger, 383 cu. in. Torqueflite, r/h, \$1,995. 213-397-6638.
Oldsmobile, 1955, \$50. 213-672-1617.
Oldsmobile, 1966 Deluxe Toronado, full power, fact. air, \$2,875. 213-372-4037.
Datsun, 1964 1500 sport rdster., Pirelli tires, \$1,195. 213-378-7933.
Station Wagon, 1963, Ford Falcon, \$350. 213-679-0835.
LeMans, 1966 convt., 326 eng., new p/b, p/s, \$1,600. 213-678-7449.
Station Wagon, 1957 Ford, radio, auto. trans., \$125. 213-868-1940.
Mustang, 1967, r/h, fact. air, stereo tape, 4-spd., \$2,000. 213-894-1380.
Volkswagen, 1968, many extras, \$2,150. 213-379-8973.
Rambler, 1960, stick shift, \$225. 213-938-9788.
Ford, 1959 Galaxie, 2-dr., 332 eng., Cruise-O-Matic trans., p/s, \$250. 213-675-8278.
Travelall, 1966, V-8, a/t, a/c, p/b, p/s, r/h, hitch & 2 tanks, \$1,785. 213-927-0282.
Station Wagon, 1957 Ford, V-8, 292, 4-bbl., r/h, p/s, \$235. 213-325-4580.
Falcon, 1964 Sprint, new 289 eng., 4-spd. trans., \$100 dn., \$45 mo. pymts., \$750 approx. bal. 714-826-6445.
Ford, 1964 Custom 2-dr., 6 cyl., std. shift, \$500. 714-879-8724.
Porsche, 1959 convt., r/h, \$2,100. 213-347-0303.
Truck, 1963 Chev., ¾-ton, 292" 6, 3-spd., 15-gal. aux. tank, 8' bed, other hvy. duty equip., \$1,195. 213-329-4402.
Pontiac, 1962 Super Sport, \$300. 213-675-2000.
Buick, 1963 Special, 4-dr., V-6, \$200. 213-675-2448.
Station Wagon, 1963 Rambler 770 Classic, 4-dr., auto. trans., air, r/h, \$740. 213-941-5549.
Chevrolet, 1957 Bel Air convt., full tonneau cover, \$895. 213-291-2939.
Studebaker, 1963, 2-dr., r/h, 6-cyl., stick shift, \$300. 213-674-2254.
Shelby, 1967 GT500 Cobra 428, auto., air, stereo, \$3,495. 213-374-5935.
Pickup Truck, 1959 Ford, V-8, ¾-ton, 19½" tires, hvy. duty, \$525. 714-838-3040.
Pontiac, 1968 Firebird 400, 350 h.p. eng., console auto. trans., p/b, p/s, a/c, many extras, \$2,711. 213-633-0516.
Camper, modified Corvair Van, 1965, 110 h.p. eng., auto., \$1,250. 213-894-3244.
Cadillac, 1963 cpe. DeVille, all access., 7,000 miles, \$6,149. 213-532-5824.
Volkswagen, 1968 sedan, 16,000 miles, \$1,795. 213-327-3673.
Chevrolet, 1959 Bel Air, 2-dr., 6-cyl., auto. trans., r/h, \$275. 213-378-4567.
Volkswagen, 1965 Squareback wagon, Variant S, \$1,145. 213-834-6832.
Chrysler, 1967 Imperial Crown cpe., fully equipped, leather uphol., 6-way front seats, approx. 3 yrs. left on 5-yr. warranty, \$3,250. 213-677-4731.
Oldsmobile, 1955 Holiday, 4-dr., rocket eng., Hydro. trans., \$250. 213-671-9043.
Volvo, 1961, 4-dr., 4-spd., new eng., \$475. 213-375-8643.
Mustang, 1965 GT convt., V-8, 4-spd., \$1,250. 805-497-1551.
Pickup, 1949 Chevrolet, ½-ton, 4,200 mi. on rebilt. eng., \$100. 714-846-2378.

Automobiles For Sale
Chevelle, 1966 S.S., 396 eng., many extras, \$1,700. 805-498-3939.
Household Items For Sale
Platform Rockers, 2, gold, \$20. 213-328-3306.
Sofa, beige, \$75. 213-756-5433.
Sofa, beige, Lawson, 6½' long, \$30. 805-642-4142.
Bed, dble. w/headboard, mattress & box spring, \$200. 213-454-3378.
Bed, single, mattress, box spring & steel frame, \$12. 213-451-5330.
Beds, twin, Birdseye maple, \$50. 213-935-0493.
Refrigerator, Servel, \$24.50. 213-377-5862.
Bedroom Suite, dble. bed, nightstand, lamp, dble. dresser w/mirror, 1 yr. old, \$175. 213-755-7255.
Stove, 1964 apt. size Wedgewood, w/refrigerator, Admiral, \$100. 213-324-4507.
Refrigerator, General Electric, apt. size, \$35. 213-534-4205.
Sectional, curved corner-type, 3-pc., turquoise, \$100. 213-324-7209.
Sewing Machine, Kenmore console, \$150. 213-676-0573.
Floor Lamp, \$2. 213-675-6020.
Range, 36" Kelvinator, elec., lge. oven, \$20. 213-644-5028.
Stove, 1968 Sears brand Hartman, 30", 4-burner, gas, white, \$100. 213-644-1044.
Refrigerator, 14' Coldspot, auto. ice maker, coppertone, \$175. 213-325-3724.
Chair, modern, persimmon, \$50. 213-378-4959.
Bar Furniture, 9 pcs., all access., \$300. 213-379-0450.
Bed, Sears canopy, twin, white w/gold trim, mattress, box spring, \$90. 213-327-2252.
Mangle Ironer, \$7. 213-675-7938.
Range, Kenmore 30" coppertone, gas, used 8 mos., \$125. 714-639-5325.
Sewing Machine, Adler Belveder, never used, bltin button holer, 25-yr. guarantee, \$100. 213-672-2874.
Sofa & Chair, buff, \$100. 213-679-0966.
Hutch, 60" Early American maple, glass doors, \$250. 714-772-8254.
Recliner Chair, 3-place, avocado green, \$20. 213-324-8758.
Miscellaneous For Sale
Coat, street length, light blue, camel hair, wide stand-up silver fur collar, by Lilli Ann, size 12-14, \$45. 213-376-4787.
Desk, 3'x5' 6-drwrs., mahogany, \$50. 213-633-2395.
Luggage Carrier for TR-4 or MGB, \$5. 714-639-4438.
Box Trailer, 4'x8', \$20. 714-630-2642.
Sprayer, tank-type, Sears Cross-Country, 3½ gal. size, \$7. 213-679-1631.
Sky Rail Set, No. 17, \$5. 213-377-6193.
Cemetery Lots, 2-dble. interment, Pacific Slope sec. of Inglewood Park, incl. perpetual endowment care, \$2,000. 213-371-9829.
Bicycle, boy's 3-spd., racer, \$10. 213-671-6288.
Motorcycle, 1968 Hodaka 90, \$325. 213-379-8248.
Wedding Gown, size 12, A-line w/lace appliques & cathedral train, \$50. 213-673-0645.
Camera, Minolta Hi-matic 7's, 35mm rangefinder w/1.8 45mm lens, elec. eye, hard leather case, \$65. 213-324-5804.
Motorcycle, 1967 Honda, 305 cc Scrambler, \$350. 213-372-4762.
Golf Clubs, Wilson K-28, 4 woods, 9 irons, bag, head covers, 1½ yrs. old, \$125. 213-377-3244.
Wedding Gown, long lace sleeves, scalloped neckline w/pearls, 7' train, size 9-10, \$45. 213-676-5486.
Mobile Home, 1962 55'x10' Fleetwood, awnings, skirting, air cooler, furn., \$3,500. 213-321-8370.
Pups, AKC, Labrador retriever, \$100 up. 213-347-6133.
Accordion, 120 bass, black & gold, \$50. 213-671-3565.
Coin Collection, U.S. all types, valued o/ \$600, \$399. 213-670-6016.
Lavatory Set, white, \$20. 213-679-6982.
Drum set w/cymbal, \$80. 213-371-3769.
Cabin Cruiser, Corinthian, 22', 8' beam, 110 h.p. inbd. International, sleeps 4, \$1,750. 805-495-3407.
Faceting Machine, Taylor, complete, \$200. 213-395-9821.
Boat Trailer, 4-whl. tandem, 4,000 lb. cap., elec. brakes, \$375. 213-320-3529.
Motorcycle, BSA, 1960 650 cc, new eng., race cam, scrambler trans., \$450. 213-423-5956.
Ski Boat, 18' Stevens, 327 Chev., \$2,900. 213-582-0095.
Rifle, 30-30, Winchester mod. 94, 1 yr. old, case, 100 rounds of brass, \$80. 213-379-8993.
Stereo, custom, FM-AM tuner, 20 w. amp., w/turntable, \$175. 213-327-5376.
Guitar, Rickenbacher elec., pearl inlaid neck, 3 dual pickups, case, \$340. 213-474-5682.
Bass, stand-up type, \$150. 213-372-8618.
Pool Table, Brunswick Executive, 3½'x7', gold cloth, 2 yrs. old, \$220. 213-372-3921.
Sweater, white, size 36, \$15. 213-326-4459.
Skis, Head slaloms, 210 cm, \$65. 213-545-2431.
Radio, citizens' band, 2, mobile & base, antennas, \$200. 213-532-6695.

Miscellaneous For Sale
Bowling Ball, \$5. 213-376-4831.
Motorcycle, 1964 Bultaco, 200 cc, \$300. 213-676-8892.
Motorcycle, 250 Ducati, Dianna, basket, \$100. 213-833-4933.
Rifle, .22 cal. bolt action tube fed, w/4 power scope, \$30. 714-828-7873.
Pistol, German Walther P-38, 9mm auto., \$60. 213-375-4312.
Surfboard, Jacobs, 9'6", \$45. 213-532-8462.
Chaise Lounge, dble. unit w/small table & umbrella, redwood, \$5. 213-377-1075.
Golf Clubs, full set, 1966 Wilson K-28, 2 thru 9, 4 woods, putter, bag, \$100. 213-329-2556.
Typewriter, Smith Corona portable, \$25. 213-638-4954.
Organ, Thomas, mod. H3, blonde, full size keyboards & pedals, other features, \$400. 213-328-9064.
Trailer, box-type, \$40. 213-430-2619.
Telescope, 60 mm, refractor, equatorial mounting w/remote control slow motions, hvy. duty pedestal, other features, wood case, \$95. 213-323-6717.
Guitar, 3 pickups, case & amplifier, Silver-tone, \$150. 213-758-7030.
Horse, gelding, 9 yrs. old, black w/white stockings, \$175. 213-424-3893.
Target Pistol, 22 cal. auto. Colt, match, 6" bbl., 2 clips, \$120. 213-372-8019.
Acreage, 5 acres, Lake Mohave Rancho, near Lake Mead, \$2,500. 213-325-8567.
Bar, wood, custom bit, 6' long, h/wood top, natural, \$60. 213-372-1445.
Lot, half acre bldg. site on Foothill Dr., Agoura, city water, electricity & phones, \$8,500. 213-783-8271.
TV, 1964 19" Packard Bell, portable, \$15. 213-597-2260.
Motor Home, 1967 17' Winnebago, w/toilet & shower, gas refrig., sleeps 6, other extras, \$5,495. 213-787-2596.
Pup, poodle, 9 mos. old, turning silver, AKC reg., \$100. 213-675-1059.
Typewriter, Remington upright, Super-Riter, just o/hailed, \$65. 213-833-6045.
TV, 21" color, 1967 Admiral, remote control table model w/stand, \$310. 714-673-0104.
Lawnmower, Coleman lightweight, 18" wide, adj. cutting height, \$10. 213-323-8213.
Box Trailer, 9'x4', \$100. 213-423-3668.
Surfboard, 9'3", Custom, \$85. 213-672-8620.
Wheels, set, 4 14" Rader mag, 4-hole bolt pattern, fit Datsun or Toyota, \$125. 714-838-3711.
Motorcycle, 1966 Honda CB 160, \$325. 213-675-2813.
Carburetor, 4-bbl. for 1963 T-Bird, \$10. 213-374-4703.
Outdoor Engine, 1964 Mercury 65 h.p. w/controls & tach., \$575. 213-479-5653.
Piano, Starr upright, light walnut, full keyboard, bench, \$150. 213-670-5184.
Spoke Wheels, 4 chrome, w/700-13 tires, fit 1960-'64 Corvair, \$175. 213-671-0813.
Violin, bass, upright, Kay Mib, blonde, other access., \$200. 213-294-6490.
Tape Recorder, Sony, 500A, \$150. 213-398-4057.
Aquarium, 20-gal. tank, light & filter, \$15. 714-523-5315.
Record Player, G.E., 3-spd., monaural, amp. & spkr., self-contained in unit, \$15. 213-672-1491.
Wheelchair, w/foot rests, \$40. 213-397-3176.
Bar, portable w/2 stools, Formica top, leatherette covering, \$40. 213-370-5019.
Surfboard, 8'4" Bing, \$50. 213-374-8608.
Train, Lionel, 60-track, switches, 2-train transformer, access., \$50. 213-542-3607.
Apt, own-your-own, lge. 1-bdrm., pool, bltins, cpts., dps., \$15,500. 213-674-7743.
Trailer, 1952 27' Pan American, 20-gal. Rheon water htr., panel ray htr., 18,500 b.t.u. 2-spd. w/fan air-cond., \$1,000. 805-945-6326.
House, 3-bdrm., 2 baths, family rm., heated pool, Palos Verdes Pen., walk to schools & shopping, \$42,000. 213-377-6029.
Dog, Visla, male, reg. 1½ yrs. old, good hunter, \$75. 805-944-2678.
Potter's Wheel, complete w/motor, \$40. 213-833-4191.
Aircraft Plans, Homebuilt CA-65, 2-seater, never used, \$55. Box 301.
Acreage, 2½ acres, Antelope Valley, \$29 dn., \$29 mo., no int., \$2,900. 213-378-1026.
Ski Boat, Schlada, 17' Dee Vee, 283 Chev., near new, \$2,800. 213-545-4783.
Mountain Dog, Bernese, female, 11 mos. old, AKC, \$300. 213-377-2498.
Frame & running gear, for 1926 Model T Ford, 1912 eng., many other parts, \$350. 213-390-5687 before 3 p.m.
Camper, Ted Williams tent, sleeps 6, propane tank & burner stove, Continental kit, \$450. 213-832-5693.
Golf Clubs, full set matched irons, woods & bag, H&B Power Bilt, \$35. 714-544-6409.
Motorcycle, 1969 Ducati, Mark III Diana, extras, \$600. Box 302.
Boat, 26' Chris Craft sedan, 6-cyl. Hercules eng., dble. planked white oak hull, flush deck, sleeps 4, \$1,150. 714-968-5183.
Surfboard, 10'1" Jacobs, used twice, \$70. 213-379-5280, 213-379-4553.
Flying Club Memberships, Flyers, Inc., Hawthorne Airport, share, \$450, Bonanza, \$12 wet, Cessna Skyhawk, \$9.50 wet. 213-676-9103.
Surfboard, 9'4" Jacobs, 1½" balsa stringer, \$50. 213-894-1381.

Miscellaneous For Sale
Bicycle, 26" 10-spd., \$40. 714-677-8337.
House, 3-bdrm., 2 pullman baths, Reseda, cpts., Tappan elec. kitchen center, 75'x100' lot, b/wall, lge. rear yard, no dn. to vet. or 10% dn. to others, \$23,500. 213-370-2234.
Sailboat, 23' Star class day sailer, \$650. 213-391-3715.
Typewriter, Royal, portable, case, \$20. 213-630-4188.
Bird Cage, w/log perch & access., \$15. 213-375-7038.
Flower Girl Gown, angle length, short sleeve, size 4-6, 2-pc., orange lace, w/orange net headpiece, \$10. 213-676-1309.
Airplane, Homebuilt, single seater, wings fold, w/trailer, \$1,200. 805-498-3222.
Apts., 8, 2 4-unit buildings, all 2 bdrms., Culver City, \$73,000. 805-526-7386.
Radio, hi-fi amplifier, Craftsman AM-FM, in walnut cabinet, spkr. in sep. cherry walnut cabinet, access., \$100. 213-675-2514.
File Cabinet, metal, 3-drwr., 15" w. x 40" h. x 18" deep, \$25. 213-831-5407.
Tape Recorder, never used, Continental portable transistor mod. TP570, 4 tapes, \$35. 213-373-3128.
Camera, Brownie movie, w/8 mm Mansfield portable action editor, projector, other items, \$45. 213-645-8127.
Motorcycle, Greeves, 1963 Square Barrel, Challenger fiberglass tank, extras, \$400. 213-425-5198.
Radio, for MG, positive ground, \$10. 213-423-1363.
Trombone, Conn, case, \$35. 213-324-3686.
Motorcycle, 1966 650 cc Triumph Bonneville, \$850. 213-363-3843.
Turntable, Garrard & 2 mono. amp., spkrs., sell separate or \$75. 714-968-2780.
Scuba Tanks, dble. 72's w/I valve, harness & boots, \$90. 213-534-1028.
Engine, 352 1961 Ford, V-8, \$175. 213-324-2682.
Camper Jacks, used once, \$35. 213-534-3021.

Wanted to Buy
Engine, 352 Ford, in excellent condition. 213-679-7840.
Tent Trailer, in good condition. 805-482-3429.
Butane Tank, 3-gal., oblong. 213-323-9586.
Bedroom, living rm. & chrome dinette set. 213-328-7048.
Cement Mixer. 714-838-7161.
Revolver, .38 cal. Smith & Wesson, 4" bbl., combat masterpiece preferred. 213-374-8358.

Rentals Offered
Apt, adults o/35 yrs., unfurn., 1-bdrm., cpts., dps., bltins, \$115 mo. 213-532-7634.
Cabin, Green Valley, \$25 w/end; \$45 wk. 213-324-0649.
Cabins, Idyllwild, 1 & 2 bdrms., \$20-\$35 w/end; \$50-\$80 wk. 213-754-5288.
Cabin, Big Bear Lake, sleeps 9, \$30 w/end. 213-867-0662.
Apt, 1-bdrm., furn., subterranean parking, pool, bltins, dps., cpts., pvt. deck, Lawndale, \$150 mo. 213-644-4235, 213-670-6084.
Cabins, Lake Gregory & Crestline, sleeps 6, \$25 w/ends; \$60 wk. 213-391-3040.
House, 3-bdrm., 1 bath, unfurn., bltins, cpts., lge. fenced yd., water pd., 1 yr. lease req'd., \$175 mo. Box 303.

Rentals Wanted
House, 3-bdrm., 1¼ bath, gar., near Norair. 213-679-9648.
House, 2, 3-bdrm., unfurn., yard, Manhattan or Redondo Bch. areas, references if req'd., around \$180. 213-372-1205.

Child Care
Child Care offered, small child, my home, Mon. through Fri., lge. fenced yd., lunches, 1 block south of Norair, reasonable. 213-644-1720.
Child Care offered, any age, my home, meals provided, lge. fenced yd., 10 min. from Norair. 213-644-2666.

Rides and Riders
Rides Wanted
7 a.m. — 3:42 p.m.
Between Long Beach Blvd. & Santa Fe Ave., South Gate. Vera Heffernan, Norair ext. 2581, 213-564-1988.
Torrance & Denker, Torrance. John A. Cable, Norair ext. 2200. 213-320-2827.
Rides Offered
8 a.m. — 4:45 p.m.
Moorepark Rd. & Ventura Fwy., Thousand Oaks. Donald L. Faye, Electronics Haw. ext. 517, 805-497-3252.

Personals
I wish to thank you sincerely for your kind expressions of sympathy during the loss of my sister. HAROLD NAYLOR & FAMILY.
Flying Aerocommander to Puerto Vallarta, Mexico w/large flying club, Feb. 27 through Mar. 2, share expenses, room for another couple. 714-847-2648.
I wish to express my appreciation for the expressions of sympathy in the loss of my mother. BARBARA ENRIGHT & FAMILY.
Thanks for all the cards, planter, & concern from all my friends while in the hospital. HOWARD BUTLER.
Thank you to my friends for the thoughts, prayers & answers to the call for blood for me during my recent operation & convalescence. BILL LANG.
I wish to express my sincere appreciation for the kindness extended to me. Your cards, gifts & visits are greatly appreciated. JIM ALGER.
We wish to express our sincere appreciation for the expressions of sympathy during the loss of our wife & mother. ED AGUILAR & SONS.
I wish to thank all my wonderful friends at Norair for making my retirement day a very enjoyable day, a day I will cherish forever. BEULAH GATTIAN.
Mrs. Breneman & I wish to express our thanks to those who planned & attended my retirement party. It was a most gratifying experience which was an appropriate ending to my long career at Northrop. MR. & MRS. JOHN BRENNEMAN.
I wish to express my sincere appreciation for the cards, flowers & concern during my recent illness. BEULAH PRIEST.

For Sale or Trade
Engine, 1956 Cadillac, complete w/Hydro, \$85 or trade for mini bike. 213-921-5096.

NORPEEN
(Continued from page 2)

an inexperienced operator to harden any type of interior or exterior boring in an average of three minutes. Similar work formerly took two experienced men a half hour.

NORPEEN has been licensed to BEMCO, Inc. and exhaustive tests have been completed. The tool is now available to the entire industry.

In developing NORPEEN, Mr. Foedisch worked closely with the Northrop Patent office, Product Licensing and Metallurgical Engineering. R. A. Bridwell, supervisor, R&D Engineering, and Ed Lauchner, Metallurgical Engineering, contributed ideas which aided Mr. Foedisch in his successful development of NORPEEN.



STREAKING ABOVE a Canadian wooded area is the initial CF-5D, two-seater version of the CF-5 now being produced for the Canadian Armed Forces. Canadair, Ltd. is producing, under special licensing agreement with Northrop, 115 CF-5's for Canadian Forces and 105 for the Royal Netherlands Air Force.



HANDLING THE LOAD of the Electro-Mechanical Division's phone calls are, from left, Kathy Ruddy, supervisor, Nora Hensley, Terry Fish, Barbara Hughes and Fran Randel.

Dance, Las Vegas Excursion Top NRC's Coming Events

Two top events have been scheduled for March by the Northrop Recreation Club, Electro-Mechanical Division, Anaheim.

The first will be a Bavarian Dance on Saturday, March 15, at the NRC Clubhouse, 1834 West Valencia, Fullerton. Music will be by the Tune Launchers with dancing from 9 p.m. to 1 a.m.

Tickets are available from Jack Kinzer, Y-4; Randy Lee and Chet Guzinski, Y-1; Leo Parsons, Y-42; Harry Smith, Y-12; Beth Harris and Lynne Conroy, Y-3; Ral Turner, Y-12; Bill Holmes, Y-1 nights; Norma Hoag, Walt Petrich, Y-1.

The second big event is the

PAGE COURT NRC SERVICE STARTS

Mildred Williams has been appointed Facility Chairman Pro Tem for the Northrop Recreation Club at Page Court, according to Harry Belcher Industrial Relations representative to the NRC, Electro-Mechanical Division.

"We are extremely interested in expanding NRC services for our Page Court personnel," Mr. Belcher said. "Mrs. Williams will sit on the NRC council and suggestions for improvements can be channeled through her directly to the council."

Mr. Belcher said the council wants to expand Page Court membership and participation in these clubs.

Mrs. Williams can be reached at ext. 37, Page Court.

NRC Las Vegas trip set for March 21-23. The trip departs from Anaheim by deluxe Greyhound bus at 6:30 p.m. and arrives at Las Vegas at 11:45 p.m. The return trip will leave Las Vegas at 1 p.m. Sunday, arriving at Northrop Anaheim at 7 p.m.

The package plan includes three days and two nights in Las Vegas with accommodations at the Westward Ho Motel on the strip. The price is \$30 with a \$15 deposit required when making reservations. No reservations or refunds will be made after March 15.

Billiards League Tournament Has Large Turnout

The Eight Ball Billiards League has new tournaments for both the first and second shifts in progress at the Electro-Mechanical Division, according to Chuck Beezley, NRC billiards commissioner.

There are 24 entrants in each of the tournaments, Chuck reports, and spreads are running high. First trophies awarded went to Loy E. Pennington, second shift, and Chester Wasik, first shift, for making eight balls on the break.

The Eight-ballers are interested in challenging billiard players in other Northrop facilities. Team managers from other divisions are invited to call Mr. Beezley at ext. 318, Anaheim.



GETTING BEHIND THE 8-BALL brought trophies for Loy Pennington, left, and Chester Wasik, second shift members of NRC Billiards Club.

Many Calls, Many Phones Needed For Northrop Worldwide Business

It takes a lot of hellos on the telephone to tie together a complex organization like Northrop Electro-Mechanical Division.

During an average month last year, the communications center at the division's Anaheim department logged 22,000 incoming calls and estimated 130,000 outgoing calls. Operators handled 18,000 of these according to Kathy Ruddy, supervisor, Communications and Mail.

There were also 2,500 long distance calls and 6,500 paging calls in the department.

Heavy Traffic

To handle this enormous traffic — which totals 1,824,000 incoming and outgoing calls annually—the division has 1,180 in-plant telephones, 39 local lines, 16 Los Angeles lines, two WATS (Wide Area Telephone Service) lines, 12 tielines to Page Court, 30 tielines to Norair, and 10 tielines to Lockheed, Sunnyvale.

Mrs. Ruddy reports that the average call is eight minutes. In a year's time the monthly average of 152,000 incoming and outgoing calls add up to 44,083.6 man-days spent by division personnel on the conduct of company business.

"With such a large operation, our telephone service costs are

very large," M. E. Skilling, chief plant engineer, Industrial Engineering group, said. "Even a small reduction in the number of calls or lengths of calls can have an appreciable effect. We are always seeking new suggestions from our people on ways to make such savings."

Suggestions Help

Mr. Skilling noted three suggestions the company has adopted to reduce telephone expenses:

1. The use of long distance service on an overflow basis when WATS lines are all in use on out-of-state calls has been elimi-

nated.

2. The number of trunk lines into Southern California Area Code 213 have been reduced one-third.

3. Adoption of a policy to permit personal calls on company phones to emergencies and notification of families of overtime work.

"Cooperation and hard work by all our personnel has reduced our phone costs from a half million dollars annually to about \$300,000," Mr. Skilling said. "However, we are striving for further reductions, and are asking everyone to cooperate with us in making their calls as short as possible and only when necessary."

You Can Help

"The telephone is probably the greatest time-saving tool we have today," he added. "It is indispensable to our work. All of us who are associated with telephone service here are eager to give the best possible service. Helping reduce the number of calls will permit our communications center to better serve you in your work."



JACK LAHN, electrical maintenance foreman, handles orders for telephone moves and changes.

Linda Hennrick Will Tour With 'Young Americans'

Linda Hennrick, 17, will be a member of 30 "Young Americans" who will make a trip in March to Australia, Taiwan, Japan, Thailand, Hong Kong, Okinawa, and the Philippines to improve the image of American teenagers in foreign countries.

Linda is the daughter of Eileen Hennrick, secretary to Dr. George Friedman, chief of Systems Analysis, Electro-Mechanical Division at Palos Verdes.

The Young Americans is a singing and dancing group organized by Los Angeles teacher Milton Anderson for the purpose of making goodwill trips to foreign countries. The group pays its own way by making professional appearances in the United States.

Since she joined the group, over a year ago, Linda has appeared with it during appearances on such national network TV shows as the Perry Como Special, and the Junior Miss Pageant and was on the Ed Sullivan show February 16. The Young Americans' newest record album, "Time For Livin'," has just been released.

The coming Far East trip will be Linda's second overseas tour with the Young Americans. Last year she went with the group to Japan.

NRC Radio Club Has Contacted 99 Countries

The NRC Radio Club, Electro-Mechanical Division, Anaheim, has received 99 QSL cards confirming club amateur radio contact with overseas countries. One more is needed to qualify the club for the DX Century Club Award given by the American Radio Relay League, according to Julian Bloom, commissioner, and Paul L. Staudenmayer, trustee.

The club first went on the air in May 1962. Within two years the members had received the League's awards for "working" amateur stations in every state in the Union, and for working stations in all six continents.

The foreign stations have included talks with U.S. diplomats in Laos, a farmer in South Africa, operators in countries so new they aren't always on the map, ships at sea, a chef in a big hotel, and even from the Antarctic. The latter was from a sailor on a U.S. Navy icebreaker operating near Little America. His wife lives in Anaheim and the station made a "phone patch" connecting his station aboard ship with his wife's phone here.

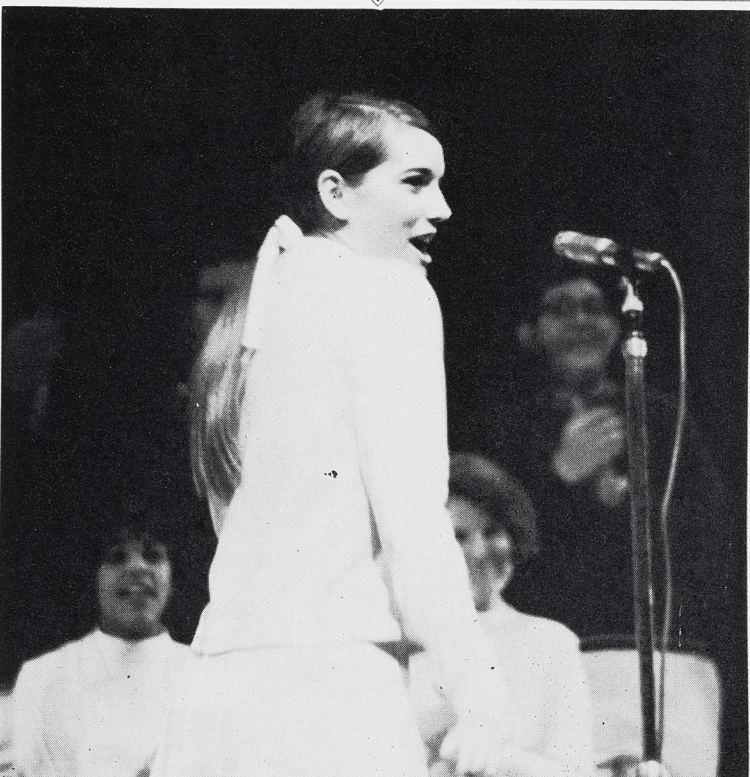
Northrop Hosts DCASR-LA Safety Meeting

Northrop Electro-Mechanical Division, Anaheim, hosted the Defense Contract Administration—Los Angeles—Safety Officers' January conference.

The DCASR-LA region is divided into six districts, located in Los Angeles, Pasadena, Van Nuys, Anaheim, San Diego, and Phoenix.

Special guest at the conference was Lt. Colonel Lowell E. Ward, USAF, chief, Specialized Safety and Flight Operations, Hq., Defense Supply Agency, Cameron Station, Virginia.

Program coordinators were H. Ozenharr, DCASD-Anaheim Safety officer, and Al Van Der Most and Del Mott of Electro-Mechanical Division, Anaheim. Other Northrop personnel participating in the program were Bert Karin, Jim Hock, Jerry Reed, Bob Wheeler and Gordon Austerman.



LINDA HENNRICK performs with the Young Americans singing and dancing group.

NORTHROP NEWS

ELECTRO-MECHANICAL DIVISION EDITION

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Major Milestone Complete With Early MTRE Delivery

The Northrop Electro-Mechanical Division's Anaheim department has successfully completed a major milestone in the C-3 Poseidon Program with completion of the factory selloff to Lockheed Missiles and Space Company and the U.S. Navy of the first MTRE MK 7 Mod 3 tactical production system ahead of schedule on February 19, 1969.

Delivery of the first MTRE MK 7 Mod 2 tactical production system and system tester was also successfully accomplished ahead of schedule in early January of this year.

The MTRE MK 7 Mod 2 system is designed for SSB(N) Poseidon Missile on-board testing. The MTRE MK 7 Mod 3 system is designed for missile and missile subsystem testing at the LMSC

factory, Navy shore facilities, and on-board SSB(N) tenders.

Delivery of the new Poseidon MTRE Mod 2 and Mod 3 tactical production systems highlight the success of the joint development program undertaken with Lockheed in April 1966, and the successful beginning of the Anaheim department's OSDP MTRE production phase of the Poseidon Program.

The successful hardware deliveries were a result of joint efforts from the Materiel, Quality Assurance, Manufacturing, and Engineering personnel.

The Northrop Electro-Mechanical Division has been a major team member in the Polaris Program since 1959.



FULL SCALE MOCKUP of deckhouse, right, proposed for U. S. Navy's Advanced Surface Missile System is inspected at Pomona Division of General Dynamics. Captain J. P. Tanze-well, Navy ASMS program manager, is accompanied by members of the industrial team, including Mel Ventura, third from left, Northrop, and R. M. Kemp, General Dynamics, extreme right. Photo above shows compact arrangement of the ASMS maintenance central console.



Division Participates in Navy's ASMS In-Process Review Program

Northrop Electro-Mechanical Division, a previously selected team member, participated in the Advanced Surface Missile System (ASMS) In-Process Review conducted recently by the U.S. Navy at the Pomona Division of General Dynamics.

Other participating team mem-

bers were Hughes Aircraft Company, Ground Systems Group, Fullerton, California; Sperry Rand Corporation, Univac (Federal Systems Division, St. Paul, Minnesota); and Sperry Rand Corporation, Sperry Gyroscope Division, Great Neck, New York.

Northrop's contract definition role is to analyze all operational, maintenance, availability and support requirements, and to define, during the contract definition phase, the optimum ASMS Integrated Maintenance and Performance Monitoring System, including Maintenance Central to achieve the Navy's specified goals in this program.

Northrop Role

During the Engineer Development Phase of the program, Northrop will develop the Maintenance Central Console equipment, the Data Acquisition units, portable Monitoring Equipment and "Off-Line Test Console" for testing the removable LRU's (least replaceable unit) detected by the

"on-line" monitoring system as responsible for the line failure of the monitored equipment.

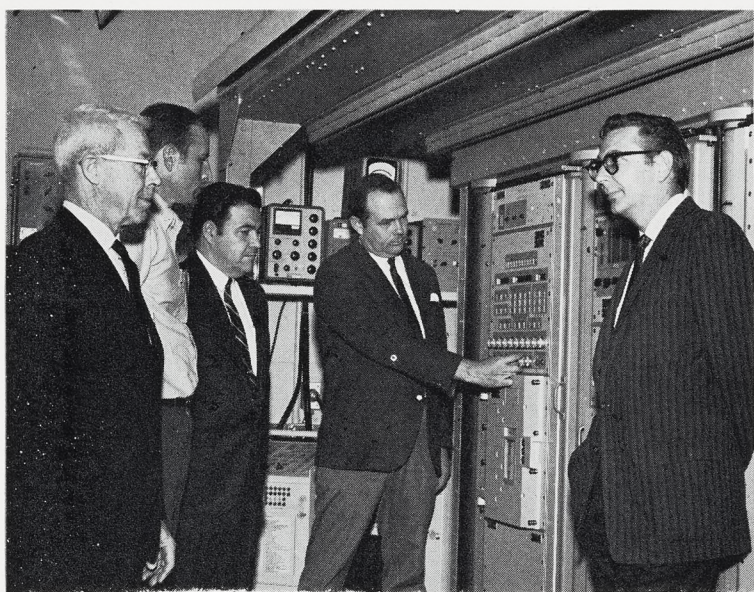
Northrop will also be responsible for integrating these equipments into the ASMS Maintenance and Performance Monitoring System.

Milestones

The important milestones for this program are:

- Completion of the recent In-Process Review at General Dynamics, Pomona
- Completion of contract definition on April 19, 1969
- And expected go-ahead for the engineering development phase August 14, 1969.

According to Mel Ventura, Northrop's ASMS program manager, competition for the program includes a Boeing team and an RCA team. This program is designed to be installed aboard the DXG, DXG(N) guided missile ships under consideration by the U.S. Navy.



WATCHING KEN SMITH check out the MTRE Mark 7 Mod 3 are from left, M. A. Seeley, Ross Wiens, Don Haley and Al Nelson. The first Mod 3 was delivered ahead of schedule.

Four Veterans Retire After 76 Years Combined Service

Four veteran members of Northrop Electro-Mechanical Division retired at Anaheim March first. They are:

CHARLES FURMAN, general machinist, whose 27 years and 5 months with Northrop makes him the oldest in point of service to retire at Anaheim. Charlie began with Northrop in 1941. He worked first as a general machinist and then as a technical R&D machinist before transferring to Anaheim. He intends to "keep busy" by pursuing his hobbies. One is cabinet making which he followed as a profession from 1929 to 1938.

JIM LANGFORD, tool and cutter grinder, has ground more than 50,000 tools in his 16 years

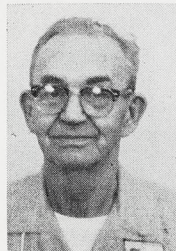
with Northrop. After retirement he intends to keep doing some kind of work. "I feel as good as I did when I was 25," he said. "Who wants to quit all work at that young?" He will also find time for his hobby, trap shooting. A champion with the trap gun, he has won many trophies.

JOE PORTER, development laboratory machinist, is a 17-year veteran of the company. He started at Hawthorne in 1952, transferring to Anaheim the next year. He expects to move to Joshua Tree to pursue his rock hunting hobby after retirement. Joe has been closely associated with the Northrop Recreation Club for 16 years. He was com-

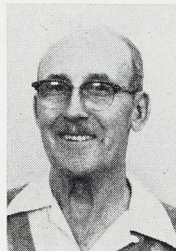
(See VETERANS, page 6)



Mr. Furman



Mr. Langford



Mr. Porter



Mr. O'Brien

Phone Operators Win Praise for Excellent Work

The outstanding work of the Electro-Mechanical Division, Anaheim, telephone operators was commended by J. R. Bishop, Page Court.

In a letter to Kathy Ruddy, supervisor, Communications and Mail, Mr. Bishop wrote: "The organization has to place many calls where time is most important. Placing these calls requires much patience, especially on overseas calls. Comments have been made by our department numerous times on the efficiency and politeness of our operators.

"Since our telephone operators are the first introduction to our company, it is a compliment to Northrop to be so represented."

TEN EMPLOYEES EARN SERVICE PINS

Ten Electro-Mechanical Division employees will become eligible for 5, 10 and 15 year service pins next month.

The 15 year veterans include Glen M. Hampton, Elwood Ketchum, Bernice M. Aleridge — all from Anaheim — and Carlo J. Montera, Houston.

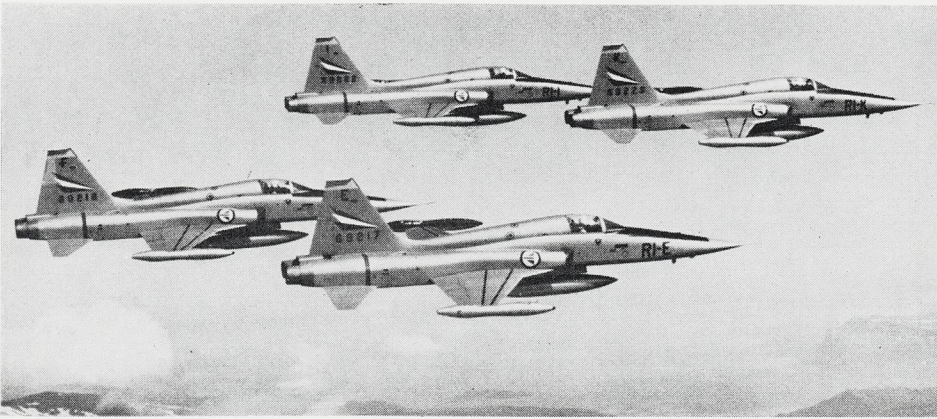
Those completing 10 years with Northrop are Eugene J. Dukette, Tommy J. Westover, John W. Gillings, Delbert W. Davis and Edward R. Tuley.

John Clark completes his fifth year with the company.

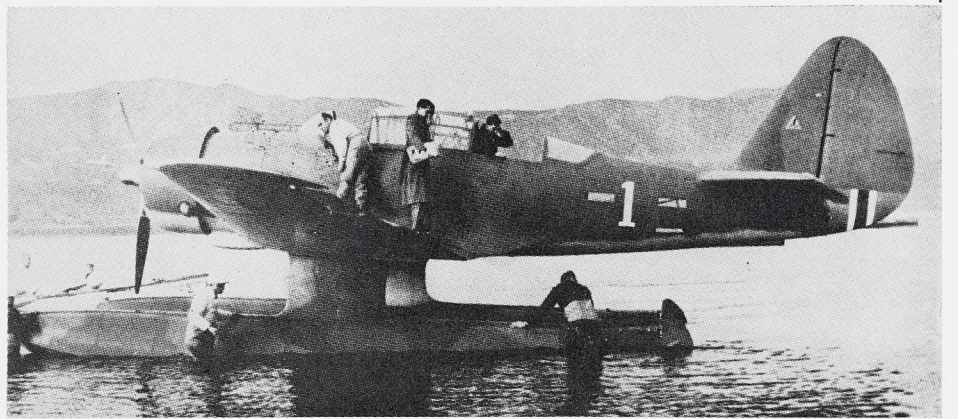


TOM QUAYLE, right, Anaheim department manager, who has been with Northrop longer than any other employee, is introduced to one of Northrop's newest employees, Charles Walter, left, by Don McInnis. Highlights of Northrop's 30-year aerospace history are shown on page 3.

Thirty Years of Progress—1939-1969



THESE NORTHROP F-5's, built for the Royal Norwegian Air Force, left, contrast with the N-3PB, right, built for the same nation 30 years ago. The N-3PB



was the first complete aircraft designed and built by Northrop. Crew above prepares first aircraft for flight test at Lake Elsinore.



JOHN K. NORTHROP, company founder, turns the first spade of dirt for Northrop Aircraft plant in September 1939. Taking part are, from left, Sheriff Eugene Biscaluz, Mayor Fred Hauser of Hawthorne and Mayor Fletcher Bowron of Los Angeles.

Northrop Experiences Many Changes

The marked growth and vast changes that have occurred at Northrop Corporation in three short decades are emphasized by the observance of Northrop's 30th anniversary.

From an original staff of 50 persons concerned with only the manufacture of airplanes, the company has grown to one that employs more than 25,000 individuals in six states and the District of Columbia and operates in many other countries.

And with this great growth, Northrop has built strength in the growing fields of communications and electronics complementing the company's steady advance in military and commercial aircraft.

While 30 years really isn't a long period of time, consider

what the 1939-1969 period has meant to Northrop.

Northrop Aircraft was incorporated and licensed to "build aircraft and aircraft parts" on March 7, 1939. It was, however, a company on paper only, without a plant, manufacturing equipment, personnel or financing.

By June 1939 arrangements were complete to finance the new firm through the sale of stocks and warrants totaling \$1.25 million. And 72½ acres of land was acquired from the city of Hawthorne.

Six employees launched Northrop's destinies from rented quarters in the old Hawthorne Hotel in August 1939. By the time ground was broken for a new plant in September, 26 employees

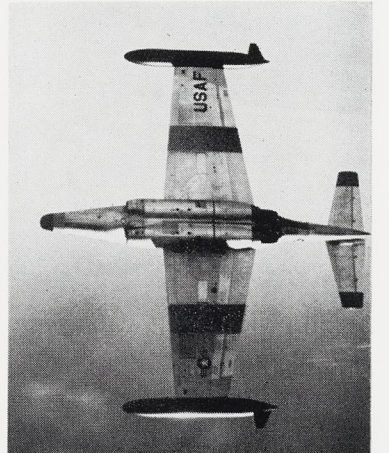
were on hand for the ceremonies.

In February 1940 occupancy of the first facility in what is now the Hawthorne complex was possible.

Today, Northrop is composed of four major divisions, six wholly owned subsidiaries, and numerous affiliates and joint ventures.

Northrop Aircraft's first contract, for subcontract work for Consolidated Aircraft, was for \$650,000. Early this year a \$450 million pact was signed with The Boeing Company for a single program, work on the Boeing 747 jetliner.

Fourteen months after its inception, Northrop Aircraft had a backlog of \$2.5 million. Northrop's backlog at the end of January 1969 was \$940 million.



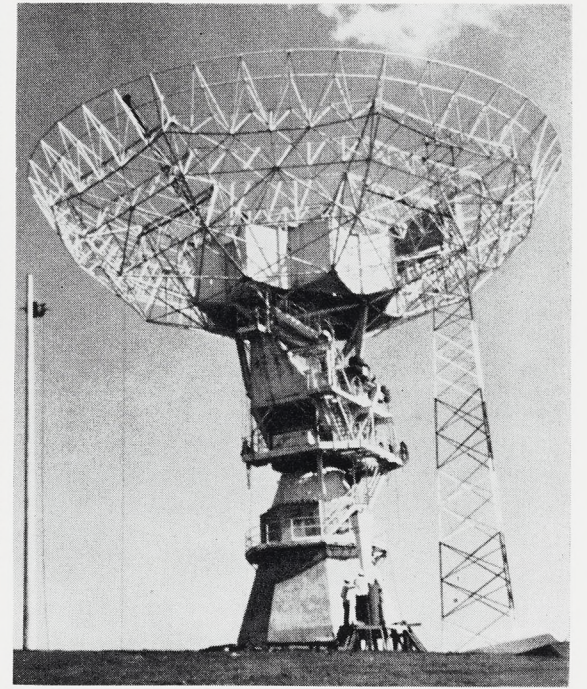
F-89 SCORPION — This aircraft, produced during the decade of the 1950's, was the first U.S. Air Force jet designed from its inception as an all-weather interceptor. It demonstrated Northrop's increasing ability to apply sophisticated electronics to military aircraft.



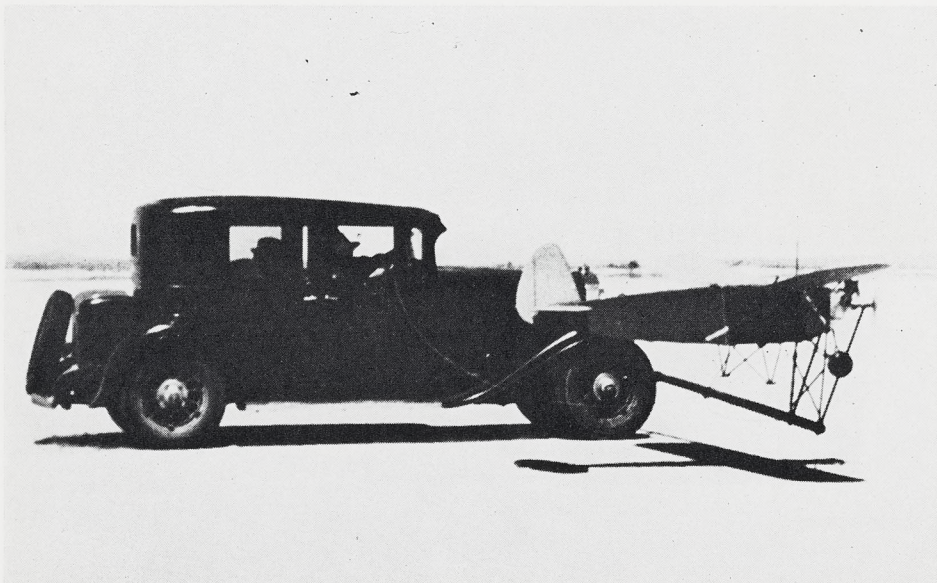
DAVID R. NUTTON, chief officer of the British Manchester Challenge, obtains position data from commercial version of the Northrop-built Omega navigation receiver.



WHERE IT BEGAN—Pioneering Northrop employees returned to Hawthorne Hotel where Northrop began operating on the occasion of company's 20th birthday. They are, from left, Tom Chittenden, Tom Quayle, Dick Nolan, Walt Gage, Bob Catlin, Paul Bonham, John Pfarr, Carl Raker, Roy Lindstrom and Mel Brown.



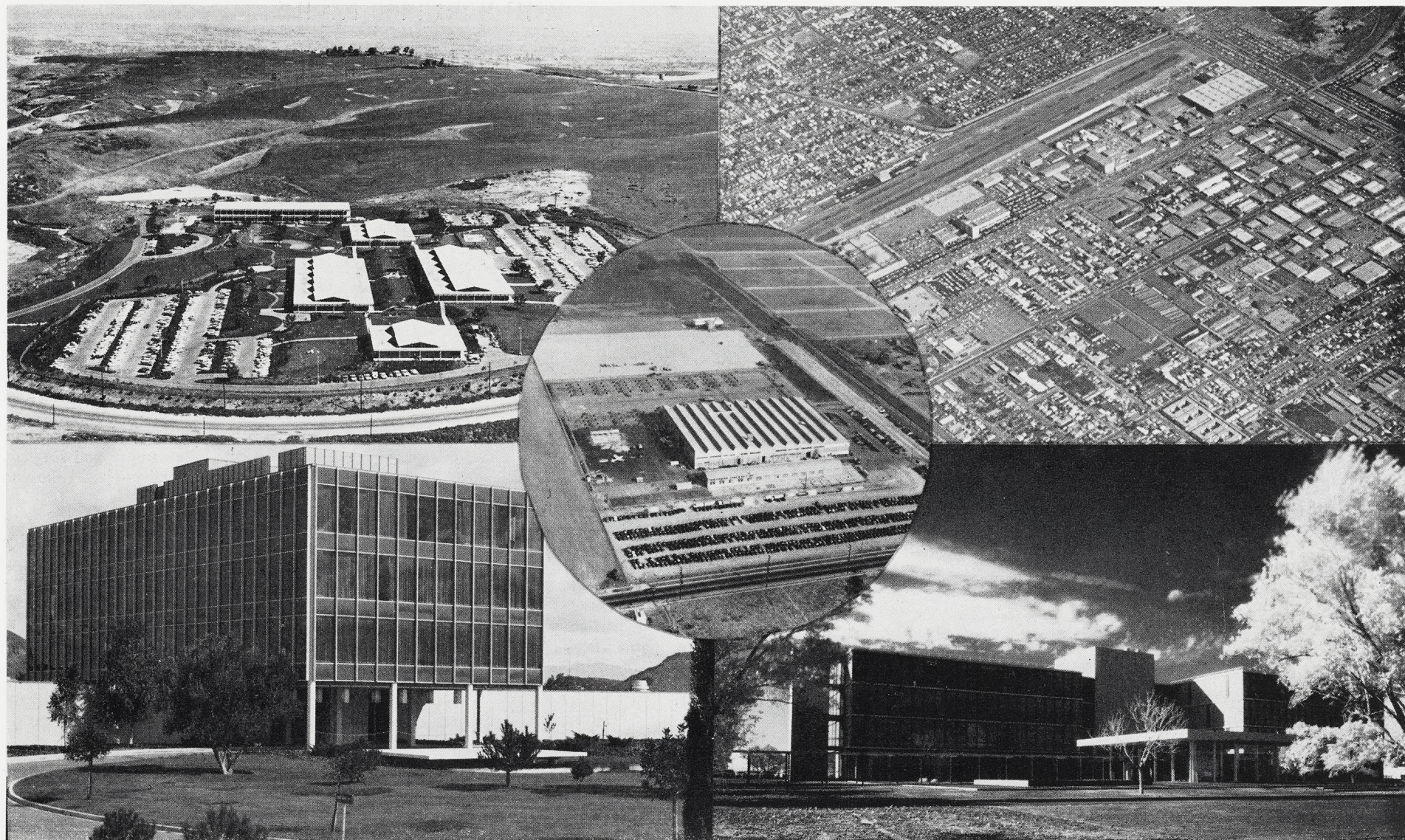
MODERN-DAY technology at Northrop includes design and installation of earth stations for satellite communications through Northrop Page.



MAKESHIFT WIND TUNNEL—Unique Radioplane test rig, above, was used on first drone tests in late 1930's.



IN THE World War II P-61 Black Widow nightfighter, Northrop first demonstrated its expertise in electronics. One of the first radar-equipped fighters, the Northrop P-61 could find and shoot down enemy aircraft in the dark of night.



SOME BIG CHANGES have occurred since Northrop Aircraft's first facility, inset, was completed in early 1940. Hawthorne Airport, then Northrop Field, is shown at left, Broadway on the right. Northrop facilities today include, clockwise from top, Electronics Division headquarters, No-air's Hawthorne complex,

Electro-Mechanical's Anaheim headquarters and the administration building at Northrop Ventura. March marks the completion of Northrop Corporation's 30th year of aerospace history.

NORTHROP NEWSMAKERS

Barbara Bucsis, wife of **Gary Bucsis**, Ventura, is among candidates seeking election to the Timber School District board of trustees in Newbury Park. **Duane Hall**, Ventura, is a member of the Timber board.

M. A. Maurer, Ventura, chaired a recent meeting of the special Manufacturing Committee of the Aerospace Industries Association in San Diego. The meeting was March 3-4 at the Hotel Del Coronado.

Maureen O'Malley, daughter of **J. A. O'Malley**, Ventura, has been accepted for a Peace Corps assignment in Ethiopia. She graduates from the University of Michigan in May.

Milt Cahn, Norair, is among the candidates seeking election to the

Redondo Beach City Council, District 2. Election day is April 8.

Aaron Feder, Ventura, recently participated in a conference on Air Breathing Propulsion for Advanced Missiles and Aircraft sponsored by the Aero Propulsion Laboratory, Wright-Patterson Air Force Base, at the Naval Training Center, San Diego.

R. E. Clemens, Norair, has authored a paper on "Application of Nondestructive Testing of Adhesive Bonded Structures for Northrop's F-5 and T-38 Aircraft." It will be presented at the March 18-20 meeting on Testing of Advanced Plastics/Composite Structures sponsored jointly by the AF Materials Laboratory University of Dayton and Aerospace Corporation.

H.E. Riggins, Jr. Named To Corporate Office Post

H. E. Riggins, Jr., has been appointed vice president - Material and Facilities, effective March 24, in an announcement by R. R. Nolan, senior vice president-Manufacturing and Administration.



Mr. Riggins

Mr. Riggins succeeds Jack W. Hinchliffe who has been placed on permanent medical disability.

"While we regret the loss of

Mr. Hinchliffe's excellent services," Mr. Nolan said in the announcement, "we are pleased to welcome Mr. Riggins into his new role with the company."

Mr. Nolan also appointed Carl W. Hood Corporate director, Material, also effective March 24. He will report to Mr. Riggins.

NEW CONTRACT

Northrop Hallicrafters Company has received an initial \$653,900 increment to a \$1,307,800 letter contract for production of components in support of airborne countermeasure transmitting equipment. The contract is from the Air Force Logistics Command.

Follow-on Contract for JOB Center Awarded by Department of Labor

Northrop has received from the U.S. Department of Labor a \$250,000 follow-on contract to continue the Northrop JOB Center activities at the Venice facility.

The center, opened in September 1968, recruits and trains people under a program of the National Alliance of Businessmen. The program was initiated by former President Johnson.

Students receive basic remedial education and vocational training to qualify as aircraft structural assemblers. They are on the company payroll, with normal fringe

benefits, during their training.

In the first phase of the program there were 108 enrolled. Eighty completed the courses and have been employed full-time by Northrop Norair in Hawthorne. Thirty-four of these have been working on the assembly line for more than 26 weeks.

The follow-on program began March 10 under the new contract with two 12-week courses of 50 students each.

To qualify for the program, a recruit must be a needy person as defined by the Labor Department. He also must be either unemployed or underemployed.

An additional stipulation is that he must be under 22 or over

44, and be either a member of a minority group, a high school dropout or handicapped.

The program director for Northrop is L. H. Walton. Other Northrop Norair employees assisting in the program are C. L. Beuchat, supervisor of Skills Training; Louis Williams, Ira Blanchfill and Art Howard, vocational instructors.

Jack Cushman, Norair Personnel Administration, interviews prospective recruits.

Important help in recruiting is provided by the Venice Westside Occupational Development Center, other volunteer community groups, and the State Employment Service.

Dr. Kistler Joins Staff As Director At Corporate Labs

Dr. Alan L. Kistler has joined the staff of the Northrop Corporate Laboratories as director of the Continuum Mechanics Laboratory, according to Dr. D. A. Hicks, vice president and manager, Corporate Laboratories.

Dr. Kistler came to Northrop from the Jet Propulsion Laboratory where he was manager of the Fluid Physics section. Prior to joining JPL, Dr. Kistler was an associate professor in engineering and applied sciences at Yale University.

He is a graduate of Johns Hopkins University where he received his doctorate in aeronautics in 1954. He has received national recognition in the field of fluid physics, particularly as related to experimental studies of turbulent flow phenomena.



Dr. Kistler

Nine Northrop Men Take Active Roles in WESTEC

Nine Northrop men are participating in technical sessions at the sixth annual Western Metal and Tool Exposition and Conference (WESTEC) this week at the Biltmore Hotel in Los Angeles.

WESTEC is sponsored by the American Society for Metals and the American Society of Tool and Manufacturing Engineers. Keynote luncheon speaker will be Louis T. Rader, vice president, General Electric Company.

Some 25,000 persons will attend the 32 technical sessions, exhibition of technical displays at the Great Western Exhibit Center and special tours. More than 120 papers will be presented.

Men from Northrop and their activities include:

Robert R. Wells, Norair, a paper on "Thin Film Diffusion Bonding of Titanium."

M. A. Maurer, Ventura, a paper on "Factory Management for the Future."

Robert Lowrie and Allan H. Freedman, Norair, co-chairing two sessions on "Composites—Graphite Fiber Reinforced."

Bernard Gaiennie, Norair, a paper on "Overview of Diffusion Bonding Techniques."

B. B. Bowen, Norair, a paper on "Fabrication and Properties of Graphite Fiber/Resin Composites."

R. E. Herfert, Norair, chairman of a "Research In Progress" session.

Frank St. Germain, Norair, chairman of a session on "Composites—Joining."

Edward Lauchner, Norair, a paper on "Design and Processing With Stress Corrosion Susceptible Aluminum Alloys."

WHAT DO YOU THINK?

What Is Your Goal in Life

W. B. Ellern, senior engineer, Electronics Division:

To eventually have a boat of my own and sail around the world. In the meantime, I'm going to do my best to lead a life of leisure, doing the things I want to do, until I set sail.



Mr. Ellern



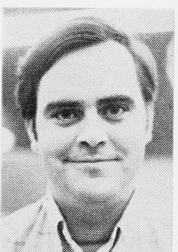
Mrs. Hall

Donna Lee Hall, office clerk, Norair:

To be a good mother and have a happy family. I'm also hoping to be able to get my three sons an education.

Pete Laflamme, Sheet Metal area, Electro-Mechanical:

People's reactions fascinate me and my goal is to become a psychologist. I am working toward that goal by going to school at night.



Mr. Laflamme



Mrs. Mertz

Margie Mertz, plastics laminator, Ventura:

You can't ask me about that at this late date. But at this point I'd say it would be to be the perfect grandmother. I have two grandsons, three years old and four months old, and I see them as often as I can. I'm hoping my other two children can give me some more grandchildren, too.



Miss King

Judi King, Reproduction, Electronics:

I guess to be successful in whatever I'm doing. However, it seems to me that as soon as you reach your goal, you set another one. I guess it's just impossible to have only one goal in life.



Mr. Gonzales

Victor L. Gonzales, paint and process tender, Norair:

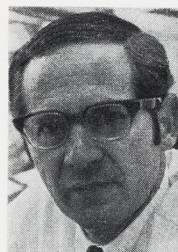
To work hard and save my earnings for my son's education. Also, I hope one day to return to my home in Cuba for a short visit.



Mrs. Gaudio

Marilyn Gaudio, Purchasing, Electro-Mechanical:

I ask nothing more than to just keep on being as happy as I am now, both at home and with my work here.



Mr. Pakula

Mac Pakula, commercial artist, Ventura:

I think I've reached mine. I've studied art and am working with art and am satisfied financially. If I have one ambition left it is to travel. No special place, just different far-off places. It's like a dream.

MOODY SCIENCE CENTER TOUR SLATED

Special arrangements have been made for Northrop families to visit the Moody Institute of Science Center in Whittier at 8 p.m., March 21.

The center produces the interesting science films seen by Northrop employees during lunch period showings. How the films are produced and preview of a new film will be included in the Northrop visit.

Tickets are free, but must be obtained in advance from Norair Personnel Activities.

WITH NORTHROP FAMILY

Sack of Rice Buys Orphan New Life

Sam Grossman, a Norair tool engineer, has a new son on the way. The boy is five years old and slightly smaller than the 100-pound sack of rice he originally cost.

The new addition to the Grossman family will be "Little Joe" Phin, a Montagnard orphan the Grossman's oldest son, Martin, found dying of malnutrition in Kontileo, a Vietnam village, in September 1967.

Martin, then a sergeant and senior medical officer in the Green Berets, took the child back to camp and nursed him to health again. After that, Little Joe continued to live with the American soldiers. Martin gave the boy's aunt—his only living relative—a hundred pounds of rice for permission to keep the boy with him.

When the time came for Martin to rotate, he wrote his parents asking them to adopt Joe.

"I wasn't really surprised," Mrs. Grossman said. "When Marty was

he was allowed to mail back only one orphan for a souvenir."

The adoption was difficult to arrange because the Montagnards—hill tribes—are not legally citizens of Vietnam. It took several months as well as writing to Senators and Representatives and qualifying with the State Welfare Department, International Social Welfare Office, International Adoption Agency, and even writing to former President Johnson and Vietnam President Thieu.

Sergeant Grossman described his brother-to-be as "very intelligent. He speaks two Montagnard dialects, Vietnamese and English. He's real active—just like an American kid."

Upon arrival—expected in about six weeks—he will receive his big brother's room. Sergeant Grossman, his military duty completed, will be away on a world cruise before settling down to work. The child will start to school in the first grade. His new sister, Stephanie, 7, promises to help with his homework—and to share her toys with him.

Mr. Grossman estimates that adoption fees and expenses totaled about \$1,000—this, of course, was in addition to the original one hundred pounds of rice.



"Little Joe" Phin

a child he was always picking up stray kids, animals and things. So when he left, I jokingly told him

Hal Simeroth Mistaken For Pointed Ear Spaceman

People used to ask Hal Simeroth for his autograph because he was himself. Now they are asking for it because they think he is somebody else.

When he was a member of the Baytown Singers trio, Hal—now an engineer in the Electro-Mechanical Division's Research and Development department—appeared on such national TV programs as Jimmie Rogers show, Edie Adams, and Hollywood Talent Scouts in addition to cutting albums for MGM.

Although the group was disbanded when two of its members were drafted, Hal still finds himself asked for autographs—but this time because he is mistaken

for a pointed ear spaceman.

The resemblance of Mr. Simeroth to Leonard Nimoy of the *Star Trek* TV space fantasy was noted by his fellow workers when he first came to Northrop a year ago. One morning he came to work and found that some wag had replaced his desk sign with one reading, "Mr. Spock, Science Officer, USS Enterprise." This is the character played by Mr. Nimoy in the TV series.

Hal went along with the gag by leaving the sign on his desk. Now he is called "Mr. Spock" more often than Mr. Simeroth, both by those trying to be funny and those who see the sign and think that is his name.

Carrying the gag farther, he recently went to a masquerade party with plastic tips on his ears and wearing a spaceman's costume. His wife spent considerable time with makeup to heighten the resemblance.

Hal, who started singing in high school, turned pro in college to help pay for his engineering education. Music became so lucrative that he abandoned science for singing. He continued his professional career for six years. After the act broke up when two members joined the Army, he returned to his first interest, engineering.

"However, the entertainment business is hard to give up," he said. So he joined two other engineer-musicians at Northrop Electro-Mechanical Division—Lyle Rennick and Jack Neece—to make appearances at such places as Las Vegas' Sahara, with actor Dale Robertson and others.

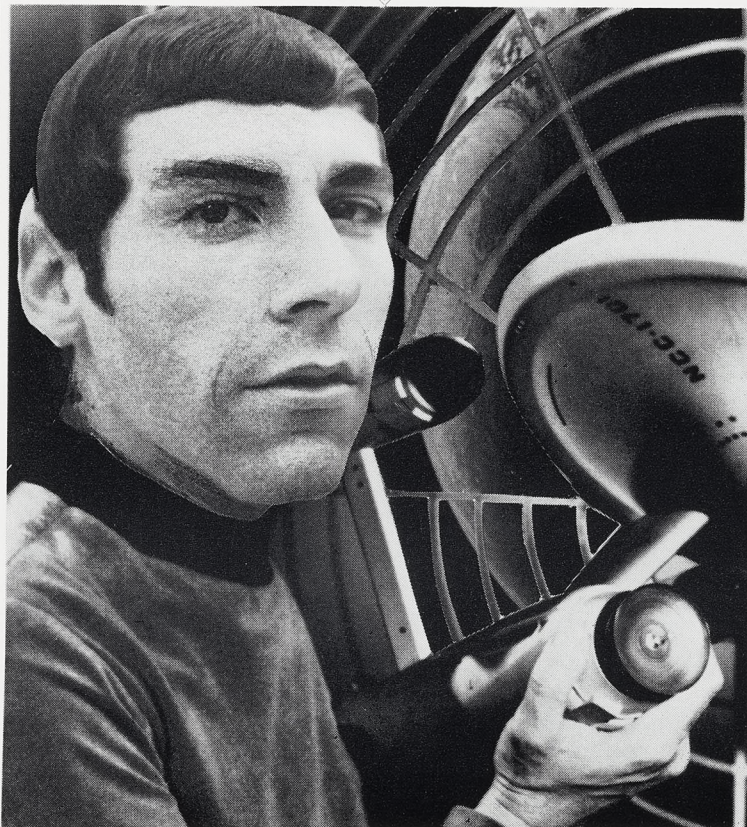
Although these were professional appearances, he says he did them primarily for fun, and has no intention of permanently competing with Mr. Spock.



David Felder

As a very young child, David showed little interest in music, his father reports. "I don't think he even liked lullabies," he said. "Then when he was five his grandmother bought a play-by-number chord organ. David was fascinated and was the first in the family to learn to play it."

Later he showed an interest in the piano and began taking lessons. He also played cello in the school orchestra.



RESEMBLANCE OF HAL SIMEROTH to a certain pointed-ear spaceman is heightened by his makeup for a recent costume party.

Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

Jaguar, 1965 XKE, just painted, \$3,250. 213-370-8242. A

Station Wagon, 1963 Mercury Colony Park, all power, \$750. 213-344-6265. A

Porsche, 1961 1600 S., AM-FM, Michelin tires, \$2,100. 213-376-2951. A

Chevelle, 1965, V-8, 283, 2-dr., h/top, r/h, p/s, auto. trans., \$1,400. 213-644-6615. A

Volkswagen, 1967 Fastback, AM-FM radio, extras, \$1,695. 213-323-8089. A

Ford, 1960, \$150. 213-676-7328. A

Pickup, 1964 Ford 1/2-ton, r/h, 292 V-8, std. trans., w/overdrive, \$995. 714-827-7189. A

Thunderbird, 1963, full power w/air, \$995. 213-644-1254. A

Buick, 1964 Riviera, full power, \$1,400. 213-327-2831. A

T-Bird, 1965, a/c, \$2,000. 213-542-2836. A

T-Bird, 1968, 4-dr., Landau, full power, a/c, \$4,050. 714-644-2432. A

Comet, 1961, 2-dr. sedan, \$300. 213-675-2529. A

Ford, 1964, Econoline van, 6-cyl. stick, r/h, take over \$49.41 mo. pymts., \$250. Box 401. A

Buick, 1962 Skylark, V-8, p/s, p/b, \$775. 714-847-9704. A

Volkswagen, 1963, radio, air, \$900. 714-879-9049. A

Chevrolet, 1957, 2-dr., stick, radio, \$350. 213-386-1875. A

Chevrolet, 1964 Impala, 2-dr. h/top, fully equipped, \$1,299.95. 213-651-0445. A

Corvette, 1964 Fastback, 327, 300 h.p., auto. trans., full power, AM-FM radio, \$2,250. 714-549-1357. A

Camaro, 1968, V-8, 327 eng., auto. trans., b/seats, console, \$3,000. 213-379-2198, 213-374-2117. A

Austin, 1965 Mini Cooper S, new tires & competition susp., 1.5 S.U. carbs., \$1,550. 213-326-3645. A

Oldsmobile, 1958 88, radio, p/s, p/b, \$65. 213-370-3821. A

Oldsmobile, 1967 Cutlass Supreme, a/c, AM-FM radio, console, p/s, p/b, \$2,300. 213-756-2492. A

Chevrolet, 1962 Impala, 2-dr. h/top, 327 h.p., 4-bbl. carb., race cam, 4-spd., many extras, \$995. 213-474-8640. A

Thunderbird, 1962, full power, Firestone wide oval tires, \$795. 213-372-9418. A

Peugeot, 1962 4-dr. sedan, radial tires, special int., \$775. 213-923-9957. A

Station Wagon, 1962 Chev. Bel Air, \$450. 213-377-0821. A

Ford, 1959 English, \$125. 213-671-1660. A

Station Wagon, Ford, 1962, fact. air, p/windows, radio, \$900. Box 402. A

Chevelle, 1966 S.S., 396 eng., many extras, \$1,700. 805-498-3939. A

Oldsmobile, 1966 Deluxe Toronado, full power, fact. air, \$2,875. 213-372-4037. A

Ford, 1968 Tourino GT, 2-dr. h/top, V-8, p/s, auto. trans., 8,000 miles, \$2,349. 213-644-2211. A

Pontiac, 1965 GT0, auto. trans., p/s, p/b, r/h, fact. air, \$1,800. 213-676-0055. A

Volkswagen, 1965 bus, r/h, 9-pass., \$1,450. 213-342-7337. A

Corvair Monza, 1961, 2-dr., r/h, auto., \$250. 213-644-6164. A

Ford, 1962 Falcon, \$400. 714-870-0546. A

MG Midget, 1963, \$700. 213-379-7726. A

Volkswagen, 1959 camper, eng. 2 yrs. old, sleeps 4, \$495. 213-672-4231. A

Ranchero, 1963, rebilt. 270, clutch, 4-spd., \$899. 213-370-3287. A

Volkswagen, 1968 sedan, \$1,795. 213-327-3673. A

Pontiac, 1965 GT0, 389 eng., 4-spd., air lifts, \$1,700. 213-374-6463. A

Volkswagen, 1956, new eng. & trans., \$249. 213-835-2396. A

Pontiac, Catalina, 1964, 2-dr. sedan, V-8 eng., r/h, \$800. 213-328-0839. A

Volkswagen, 1965 Sunroof, radio, \$1,195. 213-759-8479. A

Volvo, 1961 4-dr., new eng., 4-spd., \$475. 213-375-8643. A

Chevrolet, 1957 Belair convt., \$895. 213-291-2939. A

Datsun, 1966 1600 sport. rdstr., 3 tops, mag wire whls., \$1,200. 213-372-8003. A

Volkswagen, 1966, 1300, new eng., r/h, \$1,650. 213-927-0678. A

Tempest, 1963 LeMans cpe., 326 cu. in. V-8, auto., r/h, shift console, \$625. 213-376-3351. A

Chevrolet, 1964 Impala, 4-dr. h/top, a/c, p/s, many extras, \$1,225. 213-327-2279. A

Chevrolet, 1965 Impala S.S., 396 eng., r/h, p/s, auto. trans., \$1,500. 213-329-4451. A

Household Items For Sale

Coffee Table, mahogany, gold tooled leather top, \$22. 213-778-3859. B

Wardrobe, cedar-lined blond, \$45. 213-833-3826. B

Table set, blond, corner, 2 ends & cocktail, \$45. 213-422-2032. B

Dining Room Set, Duncan Phyfe dropleaf mahogany table, 3 insert leaves, \$118. 213-377-5862. B

Sewing Machine, \$35. 213-327-6918. B

Divan, brown sectional, \$40. 213-675-6462. B

Dining Room Set, 9-pc., 6 chairs, 70" long table, 5' buffet, 36"x66" china cab., \$225. 213-398-2488. B

Stove, Holly, 3 yrs. old, \$30. 214-644-3245. B

Piano, remodeled upright, mahogany, w/bench, \$150. 213-372-7705. B

Refrigerator, Coldspot, \$15. 213-326-1631. B

Refrigerator, 1968 Coldspot, 14 cu. ft., frost-free, white, \$170. 213-678-9395. B

Stove, O'Keefe & Merritt, \$60. 213-675-3541. B

Refrigerator, Kelvinator, 50 lb. freezing capacity, \$40. 213-323-5931. B

China, Moss Rose pattern incl. extra serving pieces, \$15. 213-823-5225. B

Hide-A-Bed, 6' Simmons, needs new slip cover, \$40. 213-644-8115. B

Sewing Machine, Sears portable, \$35. 213-582-1079. B

Miscellaneous For Sale

Golf Clubs, 1, 2, 3, 4 Wilson woods, 2-9 Spalding Elite irons, sand & pitching wedges, \$130. 213-375-4340. C

Camper, Pullman, 1964, sliding canopy, extras, \$675. 714-871-1079. C

Frame for Bonanza mini-bike, w/tires, seat, other access., \$40. 213-329-4200. C

Cemetery Lot, single, Pacific Crest Cemetery, \$230. 213-753-6277. C

Relay Rack, 6', other ham gear, \$5. 714-639-4438. C

Hardtop, Astro, for early type Datsun convt. up to 1967, \$150. 714-838-3711. C

Hearing Aid, w/5 Mercury made batteries, \$50. 213-675-1727. C

Wig, full length, \$35. 213-326-4459. C

Pistol, .22 cal. auto. Hi Standard military trophy, 7/4" bbl., 2 clips, \$100. 213-372-8019. C

Tires, 5, 7.85x15, \$75. 213-675-2000. C

Roadrace Set, Aurora, h.o. ga., complete w/case, \$30. 213-324-3686. C

Ski Boots, Bass, never used, women's 6C, men's 7 1/2C, \$5 pair. 213-672-1491. C

Mini-Bike, Mac, 9 h.p., custom, \$175. 213-671-4367. C

Knitting Machine, single bed, \$20. 213-461-2385. C

Shotgun, 11 ga. percussion dble. barrel muzzle-loading, extras, \$50. 805-648-2407. C

Speaker System, & Amplifier, 12" Stephens in corner enc., 10 w. Bell, mono ampl., \$40 or will sell separate. 213-425-5198. C

Power Generator, Briggs & Stratton, 3.5 kw, batt. start, \$250. 213-832-0025. C

Drill Press, Dunlop, hvy. duty bench model, complete w 1/2 h.p. motor, \$65. 213-754-5358. C

Acreeage, 10 acres near Lake Los Angeles, all or part, small dn., \$1,000 acre. 213-765-1817. C

Yardvac, used very little, \$90, 213-329-9809. C

Motorcycle, 1968 Honda, Scrambler, rack, \$550. 213-342-3632. C

Wheelchair, \$55. 213-941-5549. C

UHF converter, Blonder Tongue, \$10. 213-324-4817. C

Wheelchair, Everest & Jennings, folding-type, \$55. 213-672-8060. C

Massager, salon-type, \$30. 213-431-7658. C

Record Player, Magnavox console, 6 spkrs., 3-spd. changer w/AM-FM multiplex stereo, \$150. 714-525-7416. C

Motorcycle, 1966 Harley Davidson Sportster XLCH, \$1,400. 714-525-0350. C

Golf Clubs, 1, 3, 4 Mt. Woods, 2-9 irons, D3, med. shafts, \$110. 213-676-6298. C

Seat, rear, for 1965 VW bus, \$10. 213-396-6739. C

Motorcycle, Honda 450, \$550. 213-671-8864. C

Airplane, Luscombe 8E, 190 s.m.o.h. on 85 h.p. Cont., full panel, ceconite, consider partner, \$2,450. 213-379-5701. C

TV, Emerson 19" b&w portable, UHF, stand, \$40. 213-679-1631. C

Books, Tom Swift Adventure, vols. 1-27, \$15. 213-882-0761. C

Home, 2-bdrm., 150x45 R-2 lot in Inglewood, new paint & cpt., take over existing G.I. loan at 6% & \$4,000, \$22,000. 805-947-8771. C

Camera, Polaroid 104 w/all attachments, \$45. 714-968-2780. C

House, 2-bdrm., C-3 lot, room to build on front of lot, \$18,500. 213-679-2960. C

Motorcycle, 1966 Bonneville, 650 cc, new tires, \$895. 213-645-7030. C

Pup, silky terrier, male, 8 wks. old, \$175. 213-541-1923. C

Lot, Crestline, San Moritz Club, 52x100, view, terms, \$4,500. 213-377-1074. C

Poodles, AKC, 2 small mini females, 7 wks. old, \$85. 714-528-7005. C

Sailboat, 9 1/2' dinghy, dacron sail, sand dolly, cartop carrier, \$150. 213-321-1655. C

Bicycle, 16" girl's, hard tires, \$15. 213-327-2621. C

Surfboard, 9'6" Roberts, \$65. 213-676-4050. C

Miscellaneous For Sale

Reloading Equipment, complete set, for rifle & pistol, \$60. 213-675-6186. C

Tonneau for Spitfire, \$10. 213-375-5856. C

Aquarium, 20-gal., htr., filter, pump, lights, & fish, \$20. 213-676-7109. C

Wedding Gown, size 10, long lace sleeves, straight floor length, sep. shoulder cape incl., \$30. 213-644-8485. C

House, 3-bdrm., cpts., dps., fam. rm., acoustic ceilings, 2 1/2-car gar., 5 min. from Northrop, R-2, w/rental, \$27,500. 213-679-2771. C

Camping Trailer, Scotsman, sleeps 5, stove, sink, ice box, new awning & poles, \$495. 213-676-5219. C

Air Conditioner, window-type Emerson Quiet Cool, 2 settings w/fresh air circulator, 5,000 btu, 220 V., \$45. 213-833-7722. C

Crib-Playpen Combination, \$8. 213-675-7938. C

Ski Boots, boy's, buckle, size 7, other equip., \$30. 213-329-3152. C

House, 4-bdrm., 2 baths, newly redecorated, Gardena, \$32,500. 213-327-1568. C

Turntable, stereo, Garrard SL-55 w/base, cover & cartridge, \$55. 213-329-1705. C

Home Entertainment Center, Emerson, 25" color TV, AM-FM & stereo, \$600. 213-676-3062. C

Tent, 9'x9' hvy. gauge waterproof canvas, \$15. 213-630-4188. C

Racing Bicycle, Super Archer, 3-spd., \$30. Box 403. C

Kitten, male Burmese, champ. sire, \$75. 213-377-3806. C

Motorcycle, 1965 Yamaha YDS 3, 250 cc, extras, \$400. 213-323-0783. C

Swimming Pool, Doughboy, 25'x4', filter, access., \$200. 213-370-0990. C

Engine, 6-cyl. & auto. trans. for 1957 Chev., \$55. Box 404. C

Home, 3-bdrm., cor. lot, landscaped, \$23,500. 213-329-5741. C

Lawnmower, power, 2 yrs. old, \$40. 213-327-8412. C

Life Raft, Avon, 5-man Redcrest outbd. motor bracket bellows & CO2 bottles, \$150. 213-532-7381. C

Dogs, American pit bull, \$40 ea. Box 405. C

Mobile Home, 1968, 20x43, 2-bdrm., bath, skirting, awnings, porches, landscaped, \$9,000. 213-324-8406. C

Encyclopedia, Americana, 30 vols., never used, w/bookcase, \$250. 213-676-0584. C

House, 3-bdrm., 2 baths, view, family rm., heated pool, walk to schools & shopping center, P. V. Pen., \$41,500. 213-377-6029. C

Motorcycle, 1969 Suzuki AC100 10 h.p., never used, won in contest, \$300. 213-671-6692. C

TV, 1967 16" RCA portable, ivory cabinet, \$45. 213-677-2797. C

Bicycle, boy's Royce Union, 26", \$15. 213-427-3085. C

Airplane, Cessna 140, all metal, 270 hrs. s.m.o.h., 2 radios, \$2,350. 213-839-6084. C

Tires, 4 U.S. Royal Safety 800, 14"x7.75, \$25. 213-324-2689. C

Guitar, 1965 Fender Mustang, \$125. 213-545-1672. C

Speakers, 2 ARZ-A high fidelity, oiled walnut, \$120. 213-372-7875. C

Chord Organ, Esty elec., full 3-octave keyboard, 72 balanced bass chords, many extras, walnut finish, \$250. 213-671-5517. C

Surfboard, 7'10", Mobley pintail V, \$85. 213-374-8608. C

Cabin Cruiser, 17', 1966, mahogany craftsmanship made in Hong Kong, 70 h.p. elec. start Mercury outbd., tilt trailer, \$2,200. 213-823-6126. C

House, 2-bdrm., h/wood flrs., laundry rm. w/ storage cabinets, 50x150 lot, fruit trees, assume \$15,200 mtg., \$17,500. 213-863-2447. C

Miscellaneous For Sale

House, 2-story, 5-bdrm., modern kitchen, family rm., w/40' pool, near 405 & 22 Fwys., \$37,500. 714-893-4050. C

Cottage Home, Lancaster area, 2-bdrm. on 1 1/4 acre w/165' frontage, partially furn., \$12,000. 805-943-4023. C

Auto Tape Player, 8-track stereo, AM radio, 1969 Dodge Plymouth fac. unit, \$95. 213-598-3072. C

Wet Suit, 3/16" thick, for 140 lb. 5'10" man, duck feet, swim fins, sell sep. or \$25. 213-534-5350. C

Sailboat, 1963 18' Catamaran, designed by F. H. Cregor, 224 sq. ft. dacron sail, enc. cockpit, trailer, \$625. 213-374-1133. C

Wanted to Buy

Dryer, gas, in good condition. 213-370-7749. C

Sleeping Bag, down. 714-828-9256. D

Owner's Manual, 1964 Norton, Atlas 750. 213-325-1251. D

Reloading Dies, .38 Special, shell holder, brass & slugs, if avail. 213-374-8358. D

Rifle, Winchester, mod. 94, 32 Special cal., good condition. 213-323-4257. D

Trailer for motorcycle, 2 or 3 rails, will pay up to \$75. 213-830-8873. D

Bicycle, ladies' 3-spd. or more, good condition. 213-326-6195. D

Rentals Offered

Apt, 1-bdrm., furn., f/a heat, cpts., dps., bltins, 2 blocks from Norair, adults only, no pets, \$130. 213-676-5425. G

House, 2-bdrm., den, w/fireplace, 3-car gar., \$200 mo. 213-374-2945. G

Cabin, Big Bear Lake, \$30 w/end. 213-867-0662. G

Cabin, Green Valley, \$25 w/ends; \$45 wk. 213-324-0649. G

Condominium, 2-bdrm., 2 baths, 2 balconies, approx. 1,800 sq. ft., P. V. Pen., \$365 mo. 213-377-5219. G

Apt, 2-bdrm., cpts., dps., bltins, pool, unfurn., adults, \$135 & up. 213-325-2512. G

Apt, 2-bdrm., furn., lge. heated pool, patio, cpts., dps., bltins, parking space, close to El Camino College, adults, \$160. 213-329-5986. G

Rentals Wanted

House, 2-3 bdrm., unfurn., yard, Manhattan or Redondo Bch. areas, around \$180. 213-372-1205. H

Child Care

Child Care offered weekdays, my home, lunch & snacks, reasonable. 213-372-5859. I

Child Care offered in Gardena area. 213-327-2689. I

Lost

Slide Rule, Compass, white bamboo, looks like Post Log-Log w/different course, \$10 reward. Name on edge, light brown case. 213-370-2234. J

Personals

I wish to express my sincere appreciation to my fellow employees for their heart felt expressions of interest & concern as an aftermath of my recent accident. RALPH SEIFER.

I wish to thank you sincerely for your kind expressions of sympathy following the loss of my father. MARIE McNAMARA & FAMILY. L

IS IT NEWS?

CALL EXT. 4273

HAWTHORNE

Rides and Riders

Rides Wanted

7:30 a.m. — 4:15 p.m.

El Segundo & Normandie, Los Angeles. Barbara Herron, Norair ext. 1153, 213-754-3665.

8 a.m. — 4:45 p.m.

La Brea & Centinela Ave. vicinity, Inglewood. Cheri Steen, Norair ext. 1506.

4:12 p.m. — 12:42 a.m.

El Segundo Blvd. & Normandie, Los Angeles. Rose C Herron, Norair ext. 1581, 213-754-3665.

Rides Offered

8 a.m. — 4:45 p.m.

Private aircraft commuting from Orange County Airport, share expenses. Birchard H. Ford, Norair ext. 4811, 714-838-1519.

For Sale or Trade

House, 3-bdrm., 2 baths, fenced, bltins, cpts., \$20,800 or trade equity for recent model car. 714-595-6032. M

Amplifier, Eico stereo, 40 w., \$50 or trade for good portable radio or tape recorder. 213-423-5956. M

Stereo Systems, 8', AM-FM, tuner, amp., phono., Never Mar cabinet, \$195 or trade for practice spinet piano. 213-372-0129, 805-482-8550. M

Pickup, 1954 Ford, 1/2-ton, V8, stick shift, custom wood side paneling, \$400 or trade for small car. 213-678-8032. M

Contracts Report Selects Simon for Board Position

Jerome M. Simon, Corporate legal counsel representing both the Electronics and Electro-Mechanical Divisions, has been appointed to the advisory board of the Federal Contracts Report, a weekly publication of the Bureau of National Affairs.

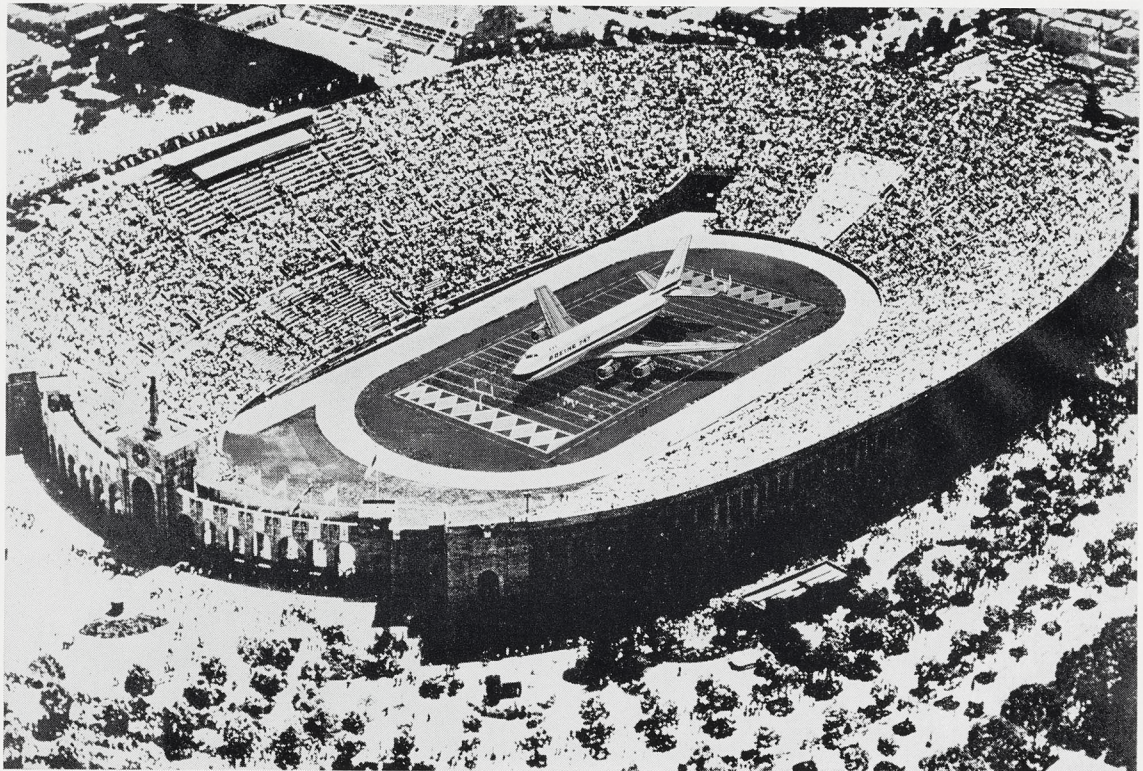


Mr. Simon

In this capacity, Mr. Simon will offer the Report's reporters his experienced judgment in evaluating the import of current developments in the field of government contracts and their possible impact upon the business community.

Mr. Simon joined Northrop in September 1967. Prior to that he was associate counsel for Lockheed-California Company, Burbank.

A past president of the Santa Monica Bay Chapter of the Federal Bar Association, Mr. Simon has participated in a number of seminars on government contracts.



A COMPARISON—It is hard to visualize just how big the Boeing 747 jetliner really is without viewing it firsthand. On the other hand, few Southland residents are not familiar with the

impressive size of the Los Angeles Memorial Coliseum. Here they are together, giving some indication of what the 747 would look like perched at midfield.

Rand's Idea for Preventing Gear Damage Tops Awards

Vernon C. Rand's suggestion for a soft key to prevent gear damage in machines at Page Court received the top suggestion award in the first 1969 awards in the Northrop Electro-Mechanical Division. His award was for \$129.

Twenty-six other awards were made for January suggestions, according to Larry King, Suggestion Award administrator. They include Michael J. Kersey, \$97, for suggesting an air-knife to blow excess oil from stringers which eliminated hand wiping; John W. Kastner who received \$90 for the first suggestion he ever submitted—an F-5 pylon fuel system tool to prevent having to dismount the assembly for installation; and an \$87 award to William S. Wetzel for mounting an indicator to permit more accurate adjustments on the Cri-Dan lathe.

Others were a \$76 award to Jim Feathers for suggesting an access hole so vari-drive belts could be replaced without disassembling the machine; Charles Driscoll, \$62, for a suggestion to eliminate surplus dry penetrant inspections; and Gordon A. Eggers, \$60, for

developing a slotted drum to separate different size parts. Mr. Eggers made a wooden working model of his idea at home to prove its practicality before submitting his idea.

More Awards

Awards of \$40 each went to Thomas R. Kennedy, who suggested standard parts handling for assembly hardware on the Hawk program, and Max Crowder, whose award was for changing the sanding system to reduce hand sanding necessary on Hawk wings.

Others receiving awards include Lionel J. Rainville, \$38; Hollie Holman, two awards, \$33 and \$11; Chester Guzinski, \$41; Linda Brood, \$30; George DiPinto, \$27; James Linn, two awards for \$24 and \$15; A. J. Downie, \$22; Robert E. Collins, \$16; \$15 awards to William Moore, P. P. Randolph, Jr., John H. Koch, Richard W. Hurd, William Brooks, and an additional \$15 award to Vernon C. Rand.

B. J. Walters received a \$13 award and Michael Cline one for \$10.



CHECKING QSL cards are Paul Staudenmayer, left, and Julian Bloom of the Electro-Mechanical NRC Radio Club. New station at Page Court is a mobile unit of the club.

Page Court Gets 'Ham' Radio Station; Club Seeks Operators

A radio station for hams at Page Court, Northrop Electro-Mechanical Division, has been set up by Terry Certain, Production Engineering coordinator, and Ernie Hill, Manufacturing Engineering supervisor.

The station will operate under the call letters WA6YNT/6, as a portable unit of WA6YNT, the ham station at the Anaheim facility.

The station is expected to go on the air in early March.

The transmitter is a Heathkit DX-100/Viking Valiant and the receiver is a Beckman/Berkeley model 7700/3 with antenna rigged for 80 meters, 40 meters and 15 meters.

The new club is wide open for memberships, Mr. Certain said. "You don't have to know anything about radio. We'll guide you to the books and courses necessary to prepare for your ham license.

"If you like to talk to people and travel, you'll like ham radio.

You can do your traveling in an armchair in front of the receiver while you talk to people all over the world."

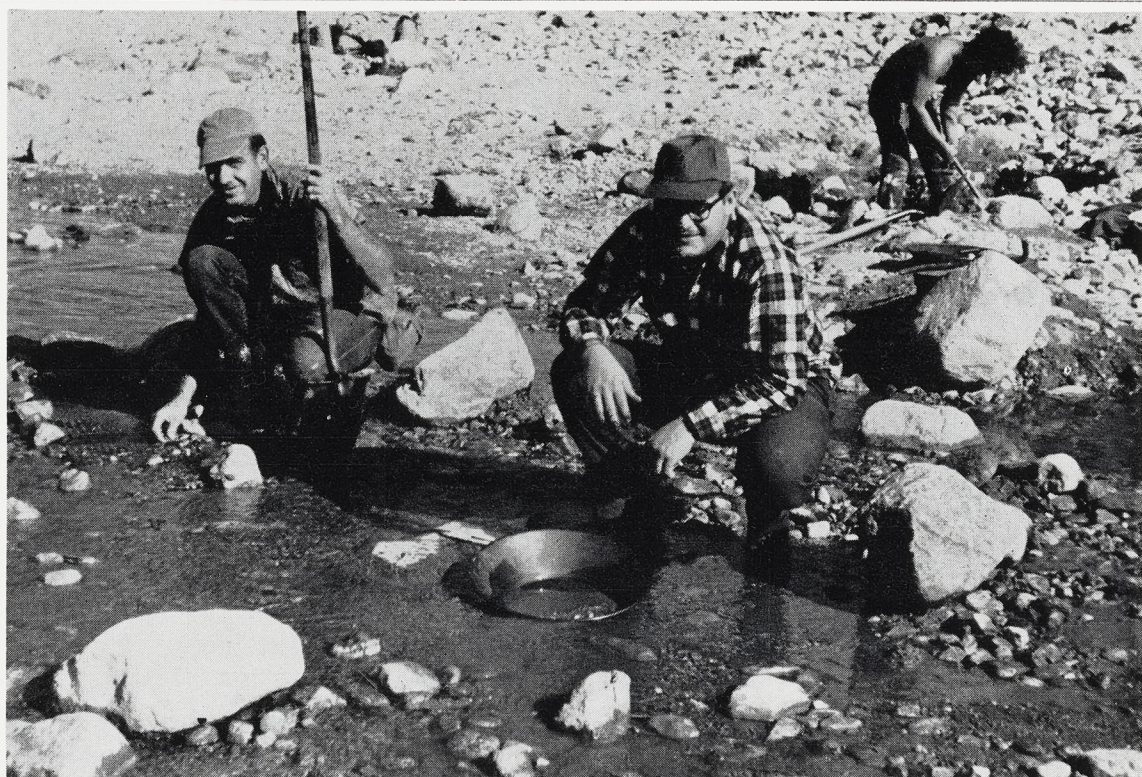
Prospective members may contact Mr. Certain at ext. 78.

VETERANS

(Continued from page 1)

missioner of the Gem and Mineral Club for five years and the Coin Club one year. He was NRC vice president one year and was an NRC representative when he retired. His wife, Eleanor, a dispatcher in Y-2, has worked for Northrop only one year less than Joe.

GERALD O'BRIEN, tool and cutter grinder, came to Northrop in 1953. Since that time he has missed only one day of work. In 1954 he asked permission to be gone a day to visit the county fair. After he retires he expects to go into the import business, dealing with perfumes and cosmetics from France.



GOLD RUSHERS Fred Barber, left, and Harry Whitmore look for a strike during a recent

Desert Rats outing. Gold panning is but one of the club's pioneering projects.

MODERN 49ERS

Desert Rats Seek Pioneer Adventure

The NRC Desert Rats — Electro-Mechanical Division — have agreed to join the 20th Century to the extent of using a metal

detector, but for the most part they stick strictly to pioneer ways.

The club is devoted to exploring desert areas, searching for historical sites, and prospecting in Arizona, Nevada and California, according to Club Commissioner Fred Barber.

The club never takes a highway when it can find a byway. Hotels and motels are taboo. They sleep under the stars in sleeping bags. When possible they swap cars for horses, and claim shaking a gold pan is more fun than shaking a cocktail.

Recent Trips

Some of their recent trips have been packing by horseback in the High Sierras, rediscovering a Butterfield Stage Coach Line station near Vallecito Creek, checking abandoned mines in the Tonopah, Nevada, area, and panning for gold on the east fork of California's San Gabriel River.

The metal detector — one of their few concessions to modernity—is useful in locating old mining camps. They have found caches of horseshoes, old building foundations, and an abandoned plow which was a sad reminder

of a "nester" who failed to make a go of desert farming.

Once they found a miner's lamp and another time the loot turned out to be some expended cartridges which led to some Wild West speculation.

On a recent mining trip to the San Gabriel River, they dug five foot holes along the banks where they figured old floods had deposited gold. Then they put an old fashioned sluice box in the river and carried sand to it in buckets. A car mat turned backwards served as slats to catch the gold.

The most they have ever panned, according to Fred, is about fifty cents worth.

Prospector Spirit

"That's hardly a big strike," he said, "but we made up in fun what we missed in wealth. And, of course, having the true prospector spirit, we are sure that on the next trip we'll all strike it rich!"

The club is wide open for new members. "The only requirement is a pioneering spirit," Mr. Barber said.

Call him at ext. 1194 Anaheim for details about joining.

Zebarth, Bowser Hook Top Honors On Fishing Trip

Top fishermen in the February trip of the NRC Fresh Water Fishing Club, Electro-Mechanical Division, were Hugh Zebarth who caught the most fish with Harry Vedel a close second and Art Bowser, club commissioner, who edged George Cook out with the largest fish caught.

"You fishermen don't know what you're missing until you've gone on one of these trips," Commissioner Bowser said. "Members plan their own trips at our monthly meeting at the NRC Clubhouse on the third Tuesday of each month."

The next outing will be at Havasu Landing on Lake Havasu during the March 15 weekend.

"Other places we will try to visit," Art said, "are Big Bear, Lake Henshaw, Lake Hemet, Casitas Lake, Lake Piru and others. We may even do some surf fishing if our members desire.

"You, your family and friends are welcome to join us," he added. "If you are interested in fresh water fishing call me at Anaheim ext 318."

LADIES LAUNCH SOFTBALL YEAR

Spring training for the women's softball team at Northrop Electro-Mechanical Division, Anaheim, begins March 24, according to Elena Huerth, NRC commissioner.

The team practices at Adlena Park, Fullerton, on Monday evenings, and will play at Brookhurst East and West, Anaheim.

Those who have signed up so far—all from last year's team which placed second in their league—are Ann Dean, Elena Huerth, Sally Osuna, May Reck, Mary Skinner, Jan Brink, Pat Phillips, Jan Martin, and Linda Davis.

All ladies interested in joining the team are urged to contact Mrs. Huerth at ext. 415 or Ann Dean at ext. 306.

Cookies Arrive Just in Time for Navy Crewmen

Crewmen of the USS Coontz had two Christmases, according to a letter received by Mary Neimeyer, film editor with the Northrop Motion Picture organization.

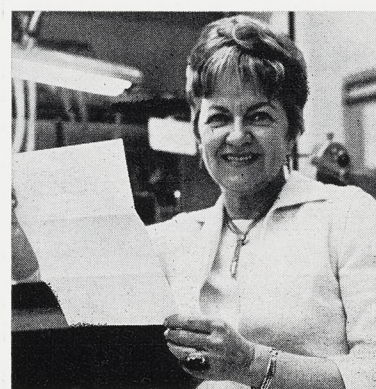
Commander E. Dale Geiger, captain of the Coontz, wrote that a large box of Christmas cookies she had baked and sent to the ship on December 2 finally arrived in the Far East on January 20.

"But that was fine," he wrote. "Our other Christmas packages had long been empty and after 20 days we were starving for 'goodies'."

Mrs. Neimeyer first got to know the sailors on the Coontz when she edited a film which the Northrop Electro-Mechanical Division produced to show operation of TEAMS (Test Evaluation and Monitoring System) in use aboard the Navy vessel. TEAMS was developed by Northrop to provide automatic monitoring of radar systems aboard ships.

Commander Geiger added, "We of the TEAMSWATCH film vote you the one person we would most rather watch TEAMS WITH."

During the editing process of the film, Mrs. Neimeyer began to feel she knew the officers and sailors who appeared in the film. When the finished film was previewed for the crew, she met them in person.



Mrs. Neimeyer

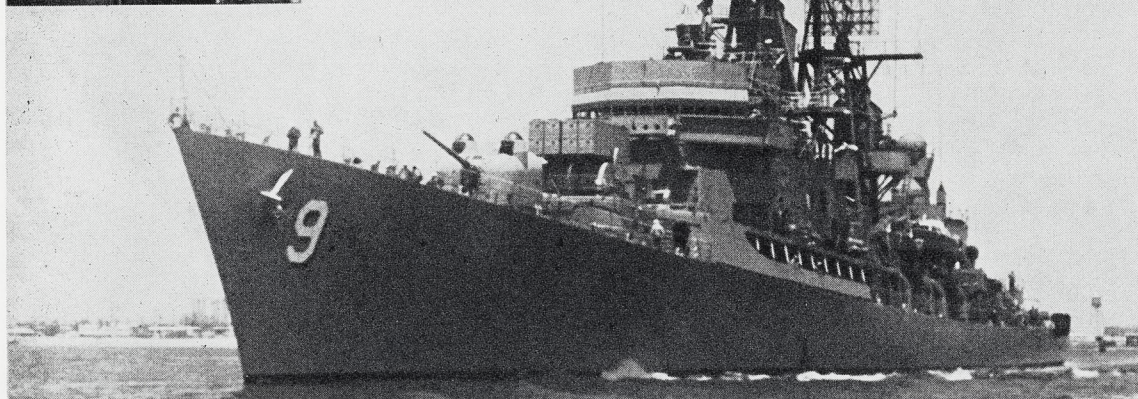
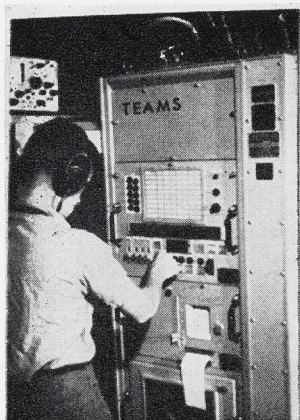
NORTHROP NEWS

ELECTRO-MECHANICAL DIVISION EDITION

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Vol. 27, No. 5

March 26, 1969



NAVY OPERATOR, insert, works with the Northrop-developed TEAMS unit aboard the USS Coontz, shown steaming toward sea during

test run. Formal Navy service approval for TEAMS came last month.

Navy Service Approval Received for TEAMS

Formal Navy Service Approval for TEAMS (Test, Evaluation and Monitoring System) was received February 19, according to T. S. Barry, TEAMS program manager.

The addition of TEAMS to the U.S. Navy approved equipment lists follows the successful Fleet Operational Evaluation (OPEVAL) recently conducted on the USS Coontz.

TEAMS currently is scheduled for installation aboard the Destroyer Escort 1052 Class Ships. Mr. Barry said that a program to put TEAMS aboard the guided missile ships of the fleet is being prepared with expansion of TEAMS into additional systems such as propulsion and communications now under study contract.

During the Operational Evaluation, TEAMS was proved to be an extremely valuable tool in rapidly locating faults within the radar systems, thereby resulting in improved over-all readiness of the surface ships.

TEAMS provides other bene-

fits such as continually providing equipment status, reducing maintenance personnel skill level requirements and reducing special and general purpose test equipment needs.

Anaheim Men And Achievers Go To Fair

Six members of the Keiko Company, Junior Achievers counselled by Northrop Electro-Mechanical Division, attended the Junior Achievers fair at Burbank recently. They were accompanied by Bob Varner, management advisor, and Don Myers, operations advisor.

Junior Achiever companies are set up each year to teach high school students the principles of starting and managing a business under the American free enterprise system. Students form their own company, sell stock to finance it, and then choose, manufacture and sell a product. Leading companies advise the youngsters.

The fair, held in the Burbank Mall, drew attendees from all Junior Achiever companies in Los Angeles and Orange counties.

The Keiko Company had a booth to demonstrate and sell their product. (See **ACHIEVERS**, page 6)

Three Join Retired List At Anaheim

Three Northrop Electro-Mechanical Division veterans have joined the company's retired list. They are William Ohmer, J. J. Taylor and Frank Clark.

Mr. Ohmer, optical fabrication technician, Optical shop, began with Northrop in April 1952, doing optical tolerance measurements on metal parts. Later he worked on aircraft instruments before taking his present position. He'll keep busy after retirement because, "I can't understand people who can't find things to do."

One of the things he'll do is head for Oregon to catch up on his fishing.

Mr. Taylor was a bench machinist in Deburring, and has worked for Northrop since 1955.



Mr. Ohmer



Mr. Clark



Mr. Taylor

Before coming here he was an automobile mechanic. His plans first call for a long rest and then he will spend his retirement years keeping busy "at something."

The third March retiree, Frank Clark, was a boiler engineer with the Industrial Engineering group. He had 14 years with Northrop, all with the Anaheim department. He hasn't yet made his plans for what he will do in his retirement years.

Safety Committee Finishes Supervisory Class Sessions

Thirteen members of the Supervisors Safety Committee recently completed a Supervisors Safety Training Course, according to Al Van Der Most, Electro-Mechanical Division Safety administrator.

Those completing the course were Roy Hollingsworth, chairman of the committee, Frank Asnon, Ed Paul, Roy Steinestel, Bob Cornelius, Hank Cozad, Keith Davis, Dave Bliss, Chuck Housman, Lee Gough, Dan Hudson, Willie Lavoie, and Bill Tucker.

Certificates were presented to the graduates by Don McInnis, director of Ordnance Production, Page Court, acting for Tom Quayle, vice president and man-

ager of the Anaheim department.

In making the presentations to the graduating group, Mr. McInnis said that the division showed a 10.7 per cent reduction in the all-over injury rate in 1968 and has an additional 15 per cent reduction goal for 1969.

"Division management is most interested in continuing our total effort in the interest of total plant safety," Mr. McInnis told the group.

He concluded with a reminder of the 1969 safety goal and thanked the committee for its efforts in helping reduce last year's all-over injury rate by more than 10 per cent.

John Burke Completes Fifth Year As Medical Self Help Instructor

John J. Burke, supervisor, Plant Protection, Electro-Mechanical Division, is completing his fifth year as a Medical Self Help instructor for Anaheim and Orange County.

The Medical Self Help program goes beyond first aid training and is sponsored by the Federal Civil Defense program through local Civil Defense offices.

"First aid teaches what to do until the doctor comes—that is, short time assistance," Mr. Burke explained. "Medical Self Help teaches what to do when you are not going to get to a doctor."

Many Uses

This could happen in times of civil disaster such as floods, earthquakes, large scale fires and even nuclear attacks when there are insufficient doctors available. It is also useful in everyday life when accidents occur in remote areas where medical help is not readily available.

Mr. Burke got into the pro-

gram while a Civil Defense volunteer worker five years ago. At that time Anaheim was selected to test the Medical Self Help program. He took the course and then an instructor's course. He has since taken three additional instructor's courses.

TV Performer

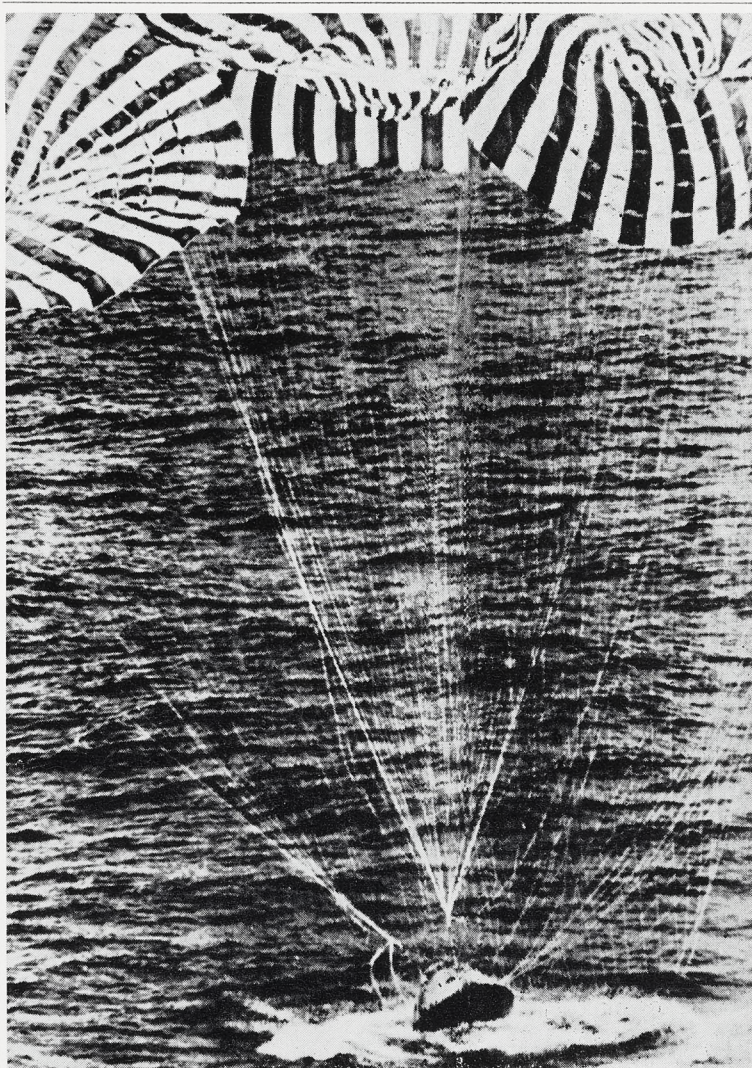
He was selected to make the first pilot Educational TV program for the project because he could cut a paper star. Cutting a star while explaining the procedure was the "screen test" he received to see if he could talk and explain things clearly to an audience.

During his five years with the program he taught the largest class and also holds the record for teaching the class with the least dropouts—in fact, it grew during the teaching. He has taught nearly 700 people in all.

"Many Northrop people have attended the courses," he said. "And I would like to see more."

TICKETS AVAILABLE

One hundred tickets are available at Personnel Services, Electro-Mechanical Division, for the April 3 baseball game between the California Angels and the Los Angeles Dodgers. The game is set for 8 p.m. at the Angel Stadium. Tickets are \$3.50 each.



SPLASHDOWN — Northrop-produced Earth Landing System parachutes safely cushion landing of Apollo 9 in first photo of a three-man spacecraft splashdown. All of America's astronauts have landed under parachutes made by Northrop's Ventura Division. (UPI Photo)

NORTHROP NEWSMAKERS

Lester H. Grohe has been elected president and a director of Warnecke Electron Tubes, Inc. Warnecke is an affiliate of Northrop Corporation and a subsidiary of The Hallicrafters Company. Mr. Grohe has served as a vice president of Hallicrafters and vice president and general manager of Electronics Division's Precision Products Department.

Jim Berry, Norair, is among candidates seeking election to the Lawndale board of education. The election is April 15.

Dr. K. M. Mitzner, Norair, has prepared a paper titled "Integral Equations for Exterior Scattering Which Have a Unique Solution at All Frequencies" for presentation at the April 8-11 spring meeting of the Acoustical Society of America in Philadelphia.

R. A. Johnson and R. E. Herfert, Norair, are co-authors of a paper titled "The Effect of Heat Cleaning on Graphite Fiber Properties" to be presented at the Fourth Annual Symposium on High Performance Graphite Composites April 8-9.

Dave Chalk, Electro-Mechanical, participated in the Orange County 12th Annual Management conference by presenting a lecture on "Managing the Marginal Employee." The conference, held

at California State College, Fullerton, is the largest management conference held in Southern California. There was a paid registration of 1,100.

William L. Bridwell, Ventura, has been named to the 1969 Flight Test Committee of the American Institute of Aeronautics and Astronautics. Another committee member is Astronaut Frank Borman.

Welko E. Gasich, vice president and general manager, Ventura, watched the Apollo 9 recovery as a guest of NASA at Mission Control, Houston.

Walter M. Clark, Electro-Mechanical, had his article on "High Altitude Daytime Sky Radiance" published in the Society of Photo-optical Instrumentation Engineers Journal.

Richard Carlson, Ventura, is among candidates seeking election to the Las Virgenes Unified School District board of trustees.

Lee Johnson, Norair, has been selected as the Stellar Chapter, National Secretaries Association's first "Boss of the Year." Mr. Johnson was nominated for the honor by his former secretary, **Doris Robinson**, treasurer of the chapter.



PAIR OF BEAUTIES—Sharp-eyed Northrop employees viewing a recent episode of television's "That Girl" probably identified Northrop T-38 jet trainers used in the sequence. Marlo Thomas, star of the show, is shown donning flight gloves with a T-38 in the background. Bob Colbert, featured on the show, visited Norair for a tour of the F-5/T-38 prior to filming of the episode.

MORE PIONEERING FOR HALLICRAFTERS IN \$2 MILLION AF INFRA-RED CONTRACT

A new field of technology in electronics is being pioneered by The Hallicrafters Company, a subsidiary of Northrop Corporation, under a \$2 million contract from the Air Force Aeronautical Systems Division, Wright-Patterson AFB, Ohio.

The award is the first contract ever granted by the U.S. Government for the design and production of infra-red transmitting systems. Previously, contracts had been let for research and development in this area, but never for production.

This significant scientific achievement establishes The Hal-

licrafters Company as a leader in this field of infra-red technology.

ICE CAPADES DUCATS

One thousand "best in the house" reserved seats for the 5 p.m., May 4 production of Ice Capades at the Los Angeles Sports Arena are now available to Northrop families at discount rates.

The seats normally sell for \$5. Through NRC sponsorship they are offered for \$3.50 each.

This ice extravaganza is one of the world's foremost exhibitions of colorful costumes, beautiful scenery and outstanding ice skating abilities.

SENIOR EXECUTIVES Management Course Graduates Fifteen

Fifteen senior executives from the corporate office, divisions and subsidiaries recently graduated from the Northrop Advanced Management Course held in Palo Alto, California. The course is given twice yearly to managers selected throughout the Corporation by the Corporate office of Management Development.

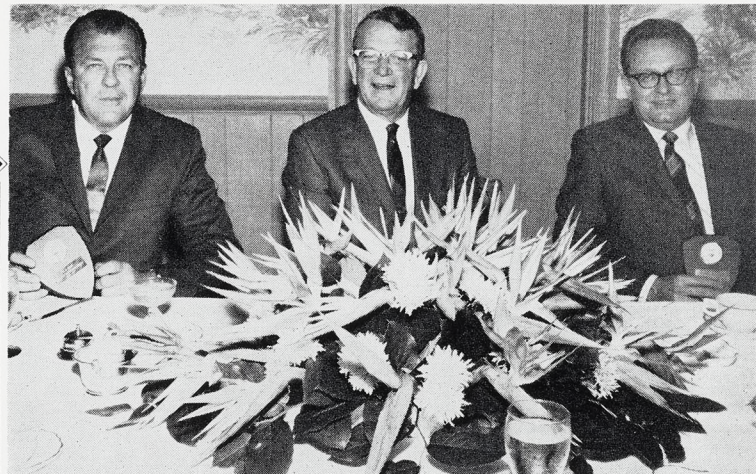
The course emphasizes that modern business is conducted in an environment of change. The objective of the course is to help managers understand how this change affects their business lives and corporate objectives, and to learn to take advantage of change instead of reacting to it. A further objective is development of common semantics to insure better understanding of corporate goals and objectives. Course materials are designed to broaden managerial perspectives and to

aid them to think in terms of the over-all environment.

Preparation for the course involves a large amount of outside reading in business management, economics, government and sociology. The sessions in Palo Alto included lectures by faculty members of the Stanford Graduate School of Business, as well as prominent business leaders.

Those attending were R. E. Horner, Corporate vice president, Technical; Fred Stevens, vice president, Corporate Diversification; Dr. D. A. Hicks, vice president, Corporate Research; F. S. Perego, Corporate vice president; P. O. Wierk, Corporate manager,

Management Information; W. E. Woolwine, vice president, F-5/T-38 Programs, Norair; R. M. McNamara, vice president, Finance, Norair; Milt Kuska, vice president, Engineering, Norair; M. G. Gonzalez, vice president, Contracts, Pricing and Service, Norair; T. L. McCarthy, manager, Night Operations, Norair; R. F. Miller, vice president and manager, Electronics Division; D. D. Warner, director, Design and Test Analysis, Ventura; C. O. Anderson, vice president, Manufacturing and Operations, Hallicrafters; and P. L. Faranda, manager, Employee and Community Relations, Hallicrafters.

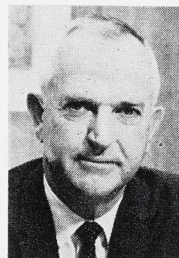


CORPORATE MANAGERS completing Northrop Advanced Management Course at Palo Alto included P. O. Wierk, left, and Dr. D. A. Hicks, right. They are shown with R. R. Nolan, senior vice president, who hosted graduation luncheon.

G.F. Douglas Honored by Alma Mater

George F. Douglas, senior vice president-Administration, has been named to the Engineering Hall of Fame at the University of Arkansas where he received his engineering degree in 1940.

Mr. Douglas was one of two men selected for this honor by their alma mater. The ceremony highlighted Engineering Week activities at the university this month. Joining Mr. Douglas



was Tell T. White, the recently retired supervisory petroleum engineer of the Federal Securities and Exchange Commission.

Mr. Douglas is a native of Fayetteville, Arkansas, home of the University of Arkansas.

Key positions filled by Mr. Douglas since he joined Northrop in 1953 have been those of vice president - Engineering for Northrop Norair, Corporate vice president and Ventura general manager, president of Northrop Carolina and his current post assumed early this year.

Mr. and Mrs. Douglas' youngest son, Andy, is now a student at the University of Arkansas.

Safety Officers Visit Norair for Tour, Briefing

Fifty members of the University of Southern California Aerospace Safety School's Flying Safety Officer Classes visited Northrop Norair this month on the eve of their graduation.

Twenty-three of the students hail from 12 allied nations.

Twenty-seven others are USAF officers representing most major Air Force commands and the Air National Guard.

Norair officials taking part in briefings for the group included Wally Reese, C. M. Dills, R. J. Kaminski, R. A. Graham, and S. Racisz.

In addition to discussions of subjects of interest to the officers, participants were taken on tours of the F-5/T-38 assembly line and the Research Laboratories.

Former Employees Sought For Retirement Benefits

Since the first of the year, Northrop Corporation employees have been instrumental in helping locate approximately 100 former employees to inform them of possible benefits available to them through the Northrop Retirement Program.

Additional names follow. Present employees knowing the whereabouts of these individuals are invited to have them call ext. 302 at Beverly Hills for further information.

Ronald J. MacIsaac, Bartley M. Maloney, Harry Manning, Dorothy B. Marsh, Joseph E. Martin, Merle S. Matthews, David L. Mattix, Jr., Kenneth F. McBride, Beatrice K. McClintock, Clyde R. McFarland, James T. McFarlane, Lee H. McGrew, Charles W. Mellon, Paul G. Monroney, Alexander M. Morrison, Margaret F. Morrison, Luther L. Mott, Floyd E. Mullins, George A. Peltier, Samuel E. Pile, R. L. Plowman.

Edward A. Polka, Jr., M. W. Rabourn, George E. Reed, Byron H. Rentz, Harriett B. Riat, Eugene A. Richard, Fred T. Roberts, J. W. Robertson, Jr., Vera A. Robinson, Joseph G. Rollins.

Jessie H. Rose, H. E. Sayre,

G. E. Schuver, M. L. Seamonds, Robert M. Seeley, Harold L. Setzke, Wayne H. Sherer, L. Craig Shilling, Walter W. Skifstrom, J. F. Smiley, Wesley W. Smith, J. R. Snyder, Henry A. Solak, F. Spenceley, Edwin D. Spiller, Jr., Gerald Steincross, Robert E. Steele, John Stewart, Elizabeth W. St. George, Clyde A. Stiles, Arch D. Strasser.

Hubert L. Stuart, Syrena V. Swanson, J. Swiderski, Frank H. Talbott, William H. Thornburgh, Keith L. Thurston, Ruth Trayford, Robert E. Trimble, G. C. Underhill, Arthur G. Webb, William H. Whitsett, Nathan T. Wilcox, Elise C. Williams, James E. Wilson, Robert J. Wilson, H. C. Winters, Clarence E. Wise, Hunter E. Withers, Joseph E. Wood, H. P. Wright, R. A. Youngmark, Harold J. Zimmer.

Northrop Donors Give 420 Pints in Bloodmobile Visit

One of the most productive bloodmobile visits at Northrop facilities in the past 18 months has produced 420 pints to bolster Northrop credits with the American Red Cross.

The March 12 blood bank operation spanned two shifts, with the first shift personnel donating 313 pints and second shifters adding another 117 pints. All Northrop operations in the Hawthorne complex, plus those at Mariposa and Torrance, took part.

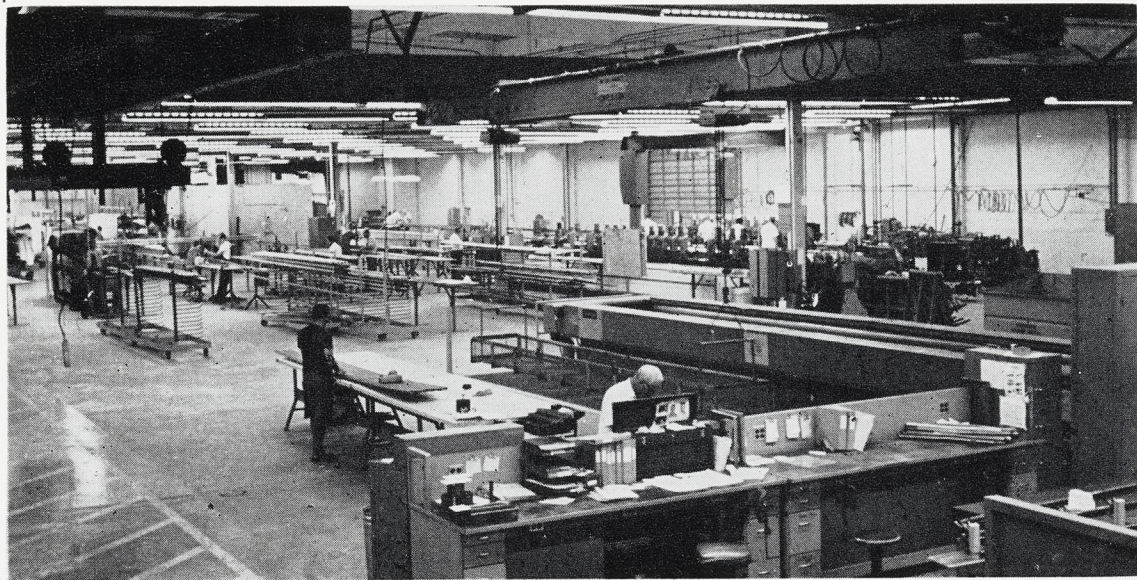
Blood donated was credited to Northrop's account and is now available to all employees and their families without charge. In addition, individual donors received personal credit with the Red Cross.

TICKETS AVAILABLE FOR DISNEYLAND

Personnel Activities outlets throughout Northrop Corporation expect to receive their quota of tickets for "Northrop Night at Disneyland" around April 1 and will immediately offer them for sale.

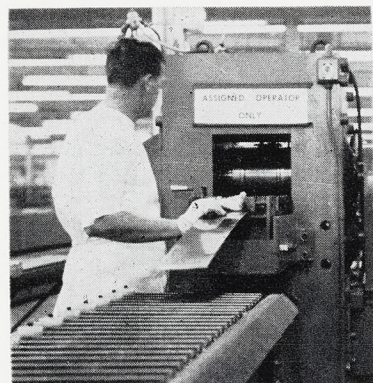
This event, slated from 8:30 p.m. to 1:30 a.m. May 24, is the entertainment buy of the year. Each \$3.75 ticket entitles the holder to admission to Disneyland and unlimited use of its many attractions.

Stringer Production Facility Supports 747 Program

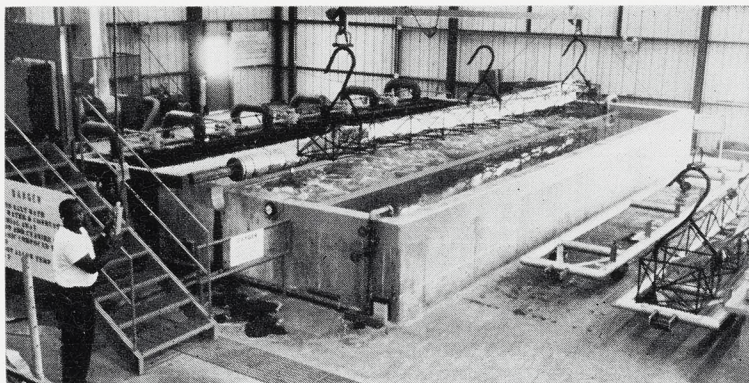


ELECTRO-MECHANICAL Division's stringer facility is designed to receive raw materials in one door and to deliver finished parts out another.

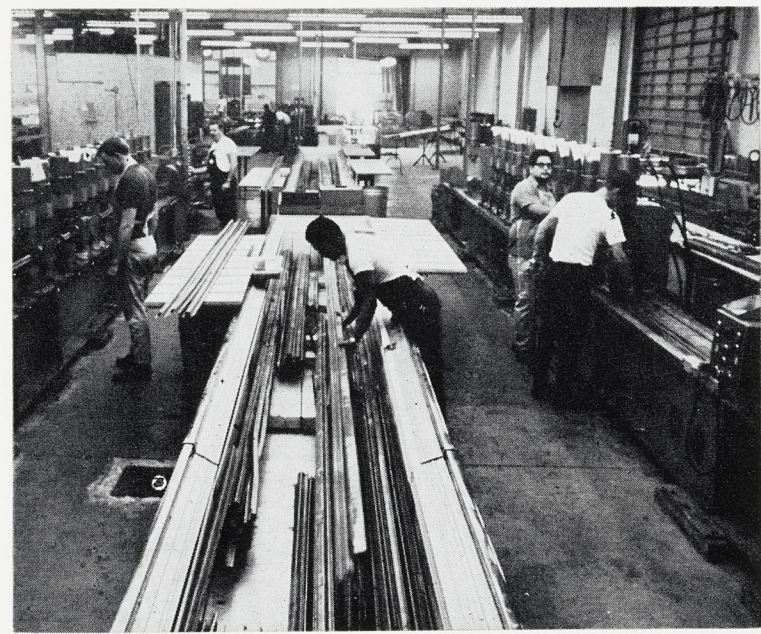
It has the capability of turning aluminum strips into finished stringers at the rate of 6,000 per month.



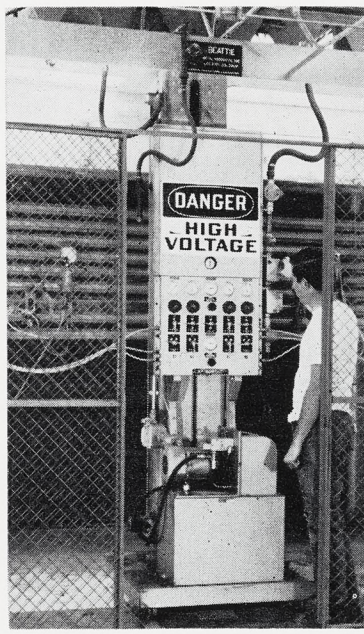
TAPER ROLLING, performed by Jerry Norman, helps reduce finished weight of components.



IN HEAT TREAT process parts are raised to 900 degrees F. by immersion in a sodium and potassium nitrate bath. Eddie Smith is the operator, left. This is initial step in a process to give aluminum high strength.



MASS JOGGLERS, left, provide offset surfaces to enable stringers to clear cross members. Open refrigerator at center, keeps treated parts from becoming too hard prior to being worked.



WADE FORSYTH is shown operating electrostatic painting machine.

The Northrop Electro-Mechanical Division operates the country's only integrated stringer facility where components are produced for use by Northrop Norair in fabricating fuselage sections for the Boeing 747 transport.

Stringers are the horizontally installed long narrow frame members that run lengthwise between bulkheads to form the fuselage skeleton to which the aircraft skins are attached. Developments by Northrop led to a new way to manufacture stringers.

The integrated facility was designed to receive raw material in aluminum strips and to do all cleaning, forming, inspecting, electrostatic painting and preparation for delivery to Norair. This is accomplished on one integrated assembly line at Anaheim.

Continuous Line

The continuous process line produces about 6,000 stringers each month, measuring a total of 22 miles and using 3,000 pounds of aluminum each day. Approximately 709 stringers in 530 different final configurations are needed for each airplane.

The integrated assembly line receives the aluminum in 300-pound rolls. These are cut to proper length, taper rolled for added strength, degreased and sent to a heat treat furnace. After the heat treat, the aluminum is

placed in open top refrigerators and kept at below zero temperatures until it can be formed into hat shaped sections on the Yoder Roll machine. It is then sent to the mass joggler to form spaced indentations for attaching the stringer to frame cross members.

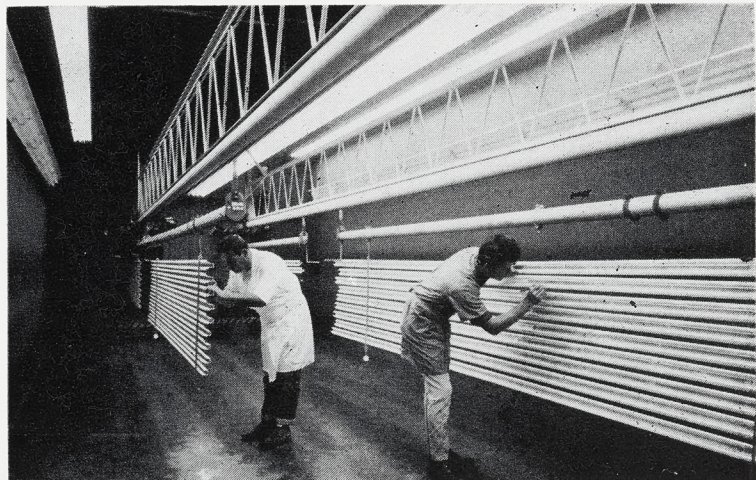
Many Steps

The next steps include contouring, degreasing, aging in an oven for 24 hours, cutting to proper lengths, and inspecting for dimension and visual condition. The parts are then sent through a "car wash" where they are cleaned and coated with a dye penetrant. This fluorescent dye penetrates any scratches or cracks which show up when parts are exposed to ultra-violet "black light."

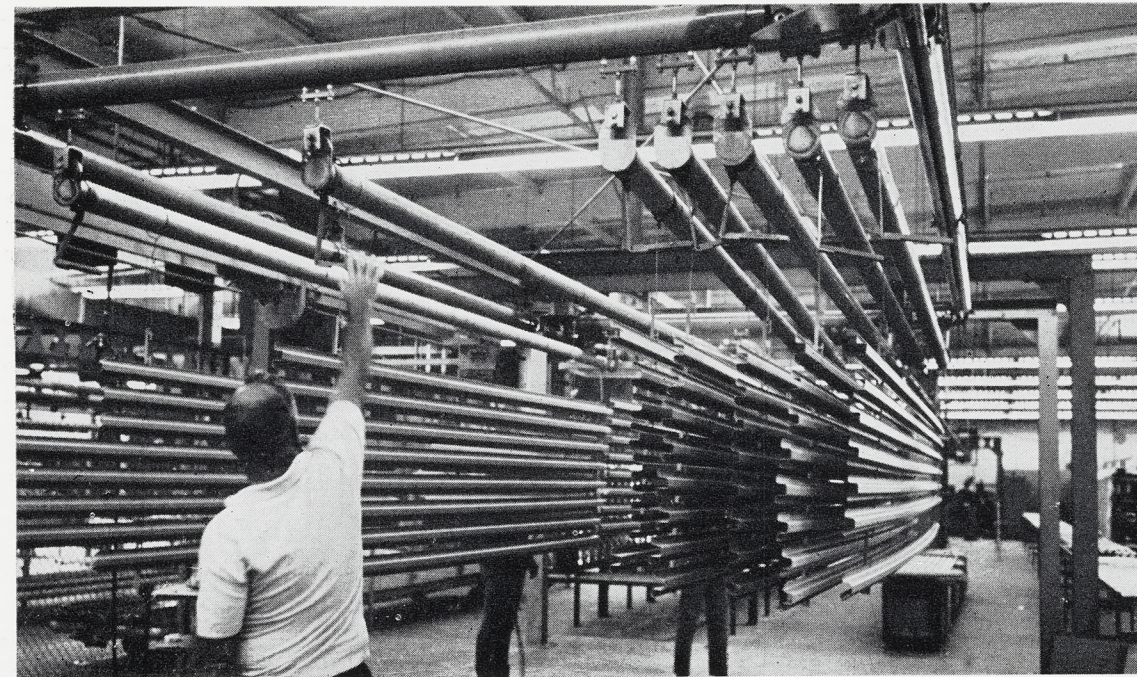
Then the parts are cleaned again and prime coated with an electrostatic spray. The final operation is boxing and shipping to Norair in Hawthorne where the finished stringers become part of the 153 feet of fuselage sections Northrop contributes to the Boeing 747.

In addition to supporting the 747 program, the stringer facility has the capability to manufacture stringers for other types of aircraft.

The stringer facility was originally developed under direction of Grant Gunderson, director of Production, and is now under D. A. Niccoli.

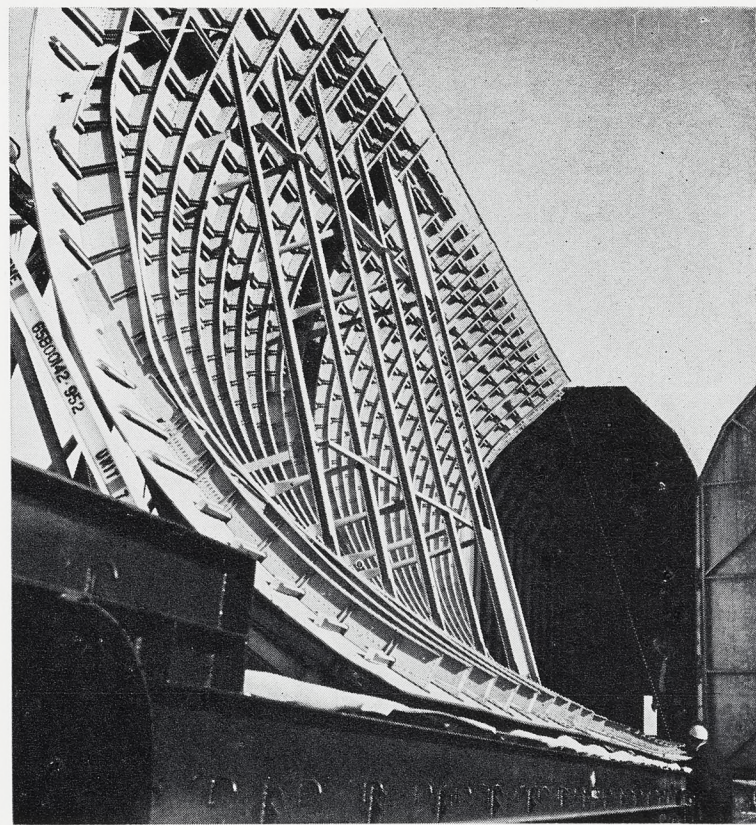


IN CAR WASH ASSEMBLY Bob Rodgers, left, and Norm Hickey inspect stringers under ultra-violet light. Fluorescent dye previously applied shows up imperfections clearly in this detailed inspection.



FINAL STOP on the assembly line finds finished stringers being prepared for shipment to Northrop Norair where they become important

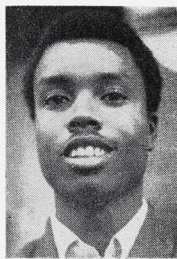
structural elements in producing Boeing 747 components. More than 700 stringers are needed for each set of 747 components.



FINISHED PRODUCT—A Boeing 747 component is being loaded into oversized boxcar for rail journey to Everett, Washington. Note how stringers are used to support exterior skin of this unit.

WHAT DO YOU THINK?

Who Would You Like to See Win Academy Award Honors



Mr. Brice

Stanley Brice, Reproduction, Electro-Mechanical:

I'm afraid I can't agree with the nominees this year. My choice is "Bonnie and Clyde" all the way. Picture, actor Warren Beatty, actress Faye Dunaway, and director Beatty.

Susan Carpenter, production assembler, Ventura:

I haven't seen the pictures that are up for nomination so I really don't know. I might have seen them, though, because we go to the movies pretty often.



Mrs. Carpenter

Ralene Hansen, reports typist, Electronics:

Steve McQueen. I saw him in "Bullitt" the other night and he was just fabulous. I've seen all his pictures, but his role in "Bullitt" was exceptional.



Mrs. Hansen

Joyce Johnson, Blueprint file clerk, Norair:

Joanne Woodward and "Rachel, Rachel." I thought the plot of the movie was good and she is my favorite actress. I just never saw a movie like that before.



Miss Johnson

Linda Skaggs, Product Assurance, Electro-Mechanical:

I haven't seen all the pictures nominated, but I'll choose Joanne Woodward as best actress for her performance in "Rachel, Rachel," and Alan Arkin for "The Heart is a Lonely Hunter." I pick them not only because of their excellent performances, but also because they are new as Academy Award nominees.



Mrs. Skaggs

Joe Gracey, sheet metal worker, Ventura:

I don't know. I don't pay any attention to it. I don't really go to the movies very much anyway.



Mr. Gracey

Pat Carmody, secretary, Electronics:

I feel Cliff Robertson should win an Oscar for his performance in "Charly." He was very effective in a role I felt was very difficult to portray. I even cried at the end of the movie.



Miss Carmody

Mary Kay Wiggins, Layout and Paste-up, Norair:

Barbra Streisand and Alan Arkin. I thought "Funny Girl" was just a fabulous motion picture. Alan Arkin did a wonderful job of acting in "The Heart is a Lonely Hunter."



Miss Wiggins

ANOTHER MOODY SCIENCE CENTER TOUR

So many Northrop families visited the Moody Science Center in Whittier March 21 that special arrangements have been made for a repeat performance.

The next tour, demonstration and film showing will be at 8

p.m. March 28. Free tickets must be obtained in advance from Norair Personnel Activities.

The center produces the interesting science films seen by Northrop employees during lunch period showings.

IN THREE SPORTS

Mitch Drootin—Star Athlete at 14

Mitch Drootin, son of Irene Drootin, secretary to the Corporate Technical Staff at Beverly Hills, received the Most Valuable Player Award for his performance in the East Valley Athletic Foundation of Pop Warner Football for Youths.

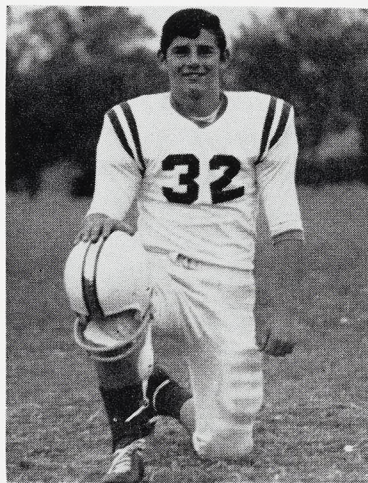
Mitch, 14, gained 700 yards rushing and scored nine touchdowns playing fullback on offense. He also played linebacker on defense. His coach, Ralph Burr who has been associated with Pop Warner football for seven years, called him the most devastating tackler he has ever coached.

The Most Valuable Player Award is but the latest in the young man's football triumphs. In 1966 he was a star on the Northridge Black Knights (midget division) which captured the Valley Conference Pop Warner championship and also won the Toys for Tots Bowl game.

The following year, he played for the Northridge Knights Junior

Bantam Division where he helped post another undefeated season.

The young man's achievements on the baseball diamond have been equally impressive. Playing four years in the Granada Hills American Little League as a catcher, he compiled a .395 batting average for the four seasons. He was twice selected for the All-Star team.



Mitch Drootin

Northrop Daughter Entertains GI's On Far East Tour

Shereen Harper, 18, daughter of Mr. and Mrs. A. S. "Bud" Bowser, Northrop employee, has returned home after a six-month tour of the Far East where she helped entertain U.S. servicemen.

As a member of the all-girl Cee Jay Trio, Shereen performed at places such as Nha Trang, Pleiku, An Khe, Qui Nhon and DaNang Air Bases, Republic of South Vietnam. The trio also had scheduled appearances in Thailand, Guam, Okinawa, Japan and Hawaii.

A highlight of the girls' visit to Vietnam came when members of the 9th Special Operations Squadron, the psychological warfare "Blue Barons," offered them special Snoopy suits to wear for their visit to an O2-B Skymaster, at Nha Trang AB.

The trio's present plans, according to Mrs. Bowser, are a few weeks vacation. They then will appear locally at the Red Vest Restaurant.

Their future plans include appearances in Nevada, and a possible European tour.



HIGHLIGHT—Shereen Harper, left, and the other members of the Cee Jay Trio pose in the Snoopy suits presented to them by the "Blue Barons" of the 9th Special Operations Squadron, Nha Trang AFB, South Vietnam.

al Junior Babe Ruth All-Star tournament championship.

In addition to his extraordinary showing in football and baseball, the Junior High student collected two gold medals for track, carries a B average in his studies and is boys' vice president of the Student Body at Porter Junior High School. He will also play the lead in the Charlie Brown musical to be presented by his school choir this month.

Las Vegas Tour Scheduled for April Weekend

Northrop Travel Club's initial group tour of 1969 is slated for Las Vegas April 18-20.

Departure will be at 7 p.m., Friday with return at 3 p.m., Sunday. Lodgings will be at the Hacienda Hotel.

The \$37.50 tab per person includes roundtrip bus travel, lodging, numerous free meals and entertainment features, a show admission and refreshments en route.

Each reservation must be accompanied by a \$15 deposit. Final date for reservations is April 9. Contact Personnel Activities.



VENTURA TWINS—Jean Ozga, left, and Betty Jane Botwright strike a classic pose for photographer Robert Thornton.

Double Vision Problem At Ventura? No, It's Twins

A new Northrop Ventura cafeteria worker did a double take. "That's the second time I've served that girl a full meal in 20 minutes," she exclaimed.

Not quite, assured a co-worker. For Betty Jane Botwright and Jean Ozga are identical twins, the only twins at Ventura.

Betty Jane is Les Albright's secretary in Materiel and Jean is an executive secretary reporting to Industrial Relations.

Common Interests

The twins started giving employees "double vision" six years ago when Jean started working at Ventura. Betty Jane is a 10-year Northrop Venturan.

Looking alike is not the only thing they share. Both enjoy painting, singing, theatre and travel. They frequently take trips together, too.

Their biggest voyage was two years ago when they spent six weeks in Europe. They've also been to Mexico and Hawaii. A

Caribbean cruise is next.

They also do favors for each other. Betty Jane once purchased a raffle ticket for Jean as a surprise gift. Jean was more surprised when she won the \$1,000 prize.

Advantages

Betty Jane and her husband, David, make their home in Camarillo and Jean has lived with them six years. "I just came to stay a week," Miss Ozga jokes.

The girls agree they enjoy being twins. "And, from a woman's angle, there's another advantage," Miss Ozga said. "We're the same size and that makes for a terrific wardrobe."

DRIVE-IN TICKETS

A new stock of discount tickets good for all Pacific Drive-in Theaters throughout the remainder of 1969 has been received by Northrop ticket outlets. Regular \$1.50 tickets are available at \$1 each.

Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

Station Wagon, 1965 Plymouth Fury III, 9-pass., fact. air, p/b, p/s, recent valve job, \$1,350. 213-370-2234. A

Chevrolet, 1966 Caprice, auto., p/s, \$1,995. 213-678-9395. A

Station Wagon, 1962 Chevrolet Bel Air, \$450. 213-377-0821. A

International Scout, 1962 4-wheel dr., new tires, \$1,000. 213-545-1676. A

Mustang, 1966 GT, fastback, auto., p/s, d/brakes, \$1,650. 213-671-2178. A

Oldsmobile, 1966 Deluxe Toronado, full power, fact. air, Landau top, \$2,575. 213-372-4037. A

Chevrolet, 1962 convt., auto., p/s, \$500. 213-370-6914. A

Rambler, 1959, 4-dr., \$200. 213-675-3431. A

MG-GT, 1967, chrome whls., r/h, vib. stereo tape, \$2,800. 213-323-8086. A

Chevrolet, 1966 Impala, 2-dr., h/top, 327 V-8 eng., p/s, auto. trans., radio, \$1,650. 213-545-1747. A

Pontiac, 1960 Catalina, 4-dr., p/b, p/s, 65,000 mi., \$250. 213-675-1253. A

Volkswagen, 1967, AM-FM radio w/rear spkr. in walnut cab., under 1,000 mil., \$1,500. 213-534-2419. A

Station Wagon, 1964 Buick Le Sabre, a/c, fully equip., \$1,095. 213-644-8385. A

Station Wagon, 1963 Ford Country Sedan, 6-pass., V-8, auto. trans., radio, \$850. 213-379-1483. A

Mustang, 1967 Fastback, many extras, \$2,100. 213-377-6352. A

Station Wagon, 1963 Buick Special, p/s, \$700. 714-523-3778, 213-674-6602. A

Chevrolet, 1964 Impala S.S., p/s, p/w, a/c, \$895. 714-635-9068. A

Firebird, 1967 400 convt., \$2,500. 213-373-1275. A

Mustang, 1967 2+2 GT, fact. air, 4-spd., AM-FM radio, \$2,095. 213-596-1333. A

Cougar, 1967, p/s, d/brakes, a/c, \$2,700. 213-329-4447. A

Chevy II, 1966, 327 cu. in., stick, b/seats, \$1,600. 213-630-4700. A

Pickup, 1962 GMC, 3/4-ton, Hydra. & Open Road self-contained camper, \$2,800. 213-375-8643. A

Rambler, 1960, stick shift, \$150. 213-938-9788. A

Corvair, 1963 700, 2-dr., r/h, \$395. 213-679-5677. A

Mustang, 1966, r/h, 6-cyl., \$1,375. 714-847-3249. A

Chevrolet, 1955 Nomad, \$800. 213-635-3824. A

Buick, 1968 Riviera, a/c, \$4,285. 714-430-2739. A

Chevrolet, 1964 Super Sport, p/b, p/s, a/c, \$1,200. 213-861-7960. A

Falcon, 1963 Futura, 4-dr., auto. trans., 6-cyl., r/h, \$450. 213-675-1884. A

Corvair, 1962 2-dr. Monza cpe., 4-spd., r/h, \$350. 714-842-6087. A

Ford, 1957 Ranchero, V-8, auto., r/h, \$265. 213-676-3628. A

Corvair, 1966 Monza, \$1,295. 213-892-0035. A

Corvette, 1964 convt., 2 tops, 327 cu. in., 300 h.p., auto. trans., \$2,200. 213-679-5238. A

Truck, 3/4-ton, 1960 Chev., stick shift, w/air cond., \$600. 213-457-9186. A

Karmann Ghia, 1962 convt., r/h, \$875. 213-325-3430. A

MGA, 1953, rebilt. eng., \$1,295. Box 501. A

Corvette, 1963 Fastback, 4-spd., Pirelli tires, \$2,150. 213-396-1490. A

Mustang, 1967, p/s, air, auto., \$550 & take over \$77.67 mo. pymts., or \$2,150. 213-883-0430. A

Pickup, 1964 Chev., 1/2-ton, custom cab, r/h, 8' Fleetside, \$895. 213-772-2056. A

Station Wagon, 1964 Rambler, 6-cyl., auto. trans., \$475. 213-564-6306. A

Scout, 1964 I.H., Super 80, 4x2, removable short cab, twin 11-gal. gas tanks, trailer hitch, many extras, \$1,000. 213-831-3594. A

Austin Healey, 1961 Sprite, recent eng. o/haul, \$600. 213-671-0925. A

Chevrolet, 1958, 4-dr. h/top, stick, \$400. 213-329-4356. A

Cadillac, 1959 convt., new top, \$550. 213-675-8246. A

Chrysler, 1962 300, 4-dr. h/top, air, new eng., all power equip., \$700. 213-374-6162. A

Shelby, 1967 GT500 Cobra 428, auto., air, stereo, \$3,495. 213-374-5935. A

Cadillac, 1962 convt., full power, fact. air, \$700. 213-663-3622. A

Opel, 1968 2-dr. sedan, r/h, 9,000 miles, stick shift, 55 h.p., \$1,295. 714-847-8682. A

Corvair Monza, 1965, 2-dr. h/top, 140 h.p. eng., auto., r/h, \$975. 213-860-7973. A

Volkswagen, 1958, \$375. 805-495-8089. A

Oldsmobile, 1963, a/c, full power, \$1,200. 213-676-2412. A

Automobiles For Sale

Pickup Truck, 1954 Ford, 1/2-ton, 3-spd. trans., w/overdrive, \$350. 213-678-8440. A

Oldsmobile, 1955, Hydro., Rocket eng., \$200. 213-671-9043. A

Cougar, 1967, 11,000 miles, \$2,999. 213-678-8467. A

Chevrolet, 1956 2-dr., 3-spd., stick shift, 295 eng., \$300. 213-670-4702. A

Chevrolet, 1959 Bel Air 2-dr., 6-cyl., r/h, auto. trans., \$225. 213-378-4567. A

Sunbeam, 1965 Imp., \$450. 213-370-5467. A

Cadillac, 1949 limousine, old square-back style, 1954 rebilt. eng., Hydramatic, \$75. 213-644-6464. A

Household Items For Sale

Draperies, pr., 21' wide, floor length, sep. pleated valance, off-white color, \$40. 213-375-5856. B

Divan, 8' gold w/green, \$40. 213-323-5931. B

Love Seat, convt., rust & gold, \$95. 213-677-2797. B

Stove, O'Keefe & Merritt, \$60. 213-675-3541. B

Youth Bed, Edison birch, Kantwet mattress, bedding, will deliver, \$29. 213-323-8089. B

Bedroom Set, antique white, \$50. 714-541-9796. B

Bar Refrigerator, counter top Norcold, \$70. 213-345-3634. B

Sofa, beige, Lawson, 78" long, \$30. 805-642-4142. B

Chairs, 2 recliner-type, \$25. 213-370-6896. B

Washer, Kenmore, about 11 yrs. old, \$15. 213-370-4475. B

Drapes, 30' floor to ceiling & 4'x8' window, \$35. 213-378-4959. B

Stove, apt. size Wedgewood, \$35. 213-534-4205. B

Washer, apt. size, compact w/wringer, \$50. 213-672-8060. B

Stove, O'Keefe & Merritt, grill & sep. broiler, \$35. 213-671-4902. B

Wardrobe, cedar lined, limed oak, \$45. 213-833-3826. B

Dishwasher, G.E. portable, used twice, \$75. 213-379-2068. B

Washer, Speed Queen, & matching gas dryer, copper-tone, sell sep. or \$400. 213-644-2179. B

Dryer, G.E., elec., \$45. 213-325-9875. B

Dining Room Set, Duncan Phyfe, blonde mahogany, 9-pc., \$275. 213-755-3043. B

Bed, twin, box springs & mattress, \$25. 213-329-5934. B

Tables, 2 end, coffee, & 2 lamps, walnut finish, No Mar, \$125. 213-675-5120. B

Bedroom Set, corner group, 2 twin beds, blue floral bed covers, formica tops, \$150. 213-534-5147. B

Refrigerator, G.E., 80-lb. top freezer, \$65. 213-424-9187. B

Range, Gaffers & Sattler, 1 1/2 yrs. old, copper-tone, \$80. 213-652-1774. B

Desks, w/chairs, 2 children's, metal w/for mica tops, \$10 ea. set. 213-376-3533. B

Range, gas, apt. size, \$30. 213-324-8758. B

Beds, twin, mahogany frame & headboard, springs, mattress, \$89. 213-427-8734. B

Couch, 8', aqua, contemporary, \$35. 213-831-4714. B

Miscellaneous For Sale

Record Player, 1967 Zenith, \$100. 213-386-1875. C

Rowing Machine, Vic Tanny, used very little, \$12.50. 213-672-1491. C

Engagement & Wedding ring set, \$300. 213-326-4459. C

Shotgun, L. C. Smith dble., 28" m/f, extra set 26" skeet, restocked in Europe, hard leather case, \$275. 213-676-4251. C

Clothing, boy's, sport coats, suit, sweaters, shirts, \$45. 213-882-0761. C

Acreage, 2 1/2 acres, Antelope Valley, \$29 dn., \$29 mo., no int., \$2,900. 213-378-1026. C

Outboard Motor, Scott-Atwater, 10 h.p., w/shift, incl. stowaway tank & storage stand, \$70. 213-374-8358. C

Mobile Home, 1968, 2-bdrm., bath, awnings, skirting, porches, landscaped, \$9,000. 213-324-8406. C

Wedding Dress, Cahill, ivory brocade, chapel train, empire styling w/veil, size 10, \$60. 213-679-4241. C

TV, 19" portable Westinghouse, \$15. 213-328-3306. C

Mini-Bike, Bonanza, 3.5 h.p., \$85. 213-329-3152. C

Car Top Carrier, enc., fits any car, \$18. 213-534-1028. C

Tent, 9' x 12' w/sewn-in floor, zippered screens, \$70. 213-325-4946. C

Travel Trailer, 1964 Kenskill, 16 1/2' self-contained, bunk & twin beds, \$1,795. 213-672-5798, 213-672-7227. C

Engine, completely rebilt. Chevy 283, dual w.c.f.b., 4 bbls., 2 Powerglide trans., other misc. parts, \$200. 213-676-1395. C

Shotgun, 12 ga. Remington, mod. 29, pump action, \$110. 213-372-3827. C

Lavatory set, white porcelain, \$20. 213-679-6982. C

Speaker Enclosure, walnut, Jensen bass reflex, 24.5" h. x 19" w. x 12.5 d., extras, \$50. 213-943-5842. C

Home, 3 bdrm., family rm., 1 1/4 bath, refrig. air cond., Canoga Pk. area, \$32,950. 213-341-3695. C

TV, 19" Emerson portable, b&w, approx. 3 yrs. old, \$50. 213-644-2401. C

Home, 3-bdrm., 1 1/4 baths, family rm. w/stone fireplace, no dn. G.I., 10% dn. F.H.A., near South Bay, \$27,000. 213-324-7185. C

Miscellaneous For Sale

Home, 3-bdrm., 1 1/4 baths, 16'x36' pool w/outside den, cpts., f/place, sep. dining room, close to schools & shopping, \$27,500. 213-324-3410. C

Bicycle, boy's 26" Schwinn racer, 3-spd., \$40. 213-675-8278. C

Dog, mini Yorkshire terrier, 1 yr. old, male, British export pedigree, \$175. 213-329-8369. C

Drums, 5 pc. set Jazzmaster, \$120. 213-324-0649. C

Pups, Labrador retrievers, black, AKC, born Feb. 16, \$75 ea. 213-377-0114. C

Motorcycle, 1969 BSA 250, \$595. 213-830-5182. C

Pups, German shorthaired pointer, AKC reg., \$100. 213-325-4890. C

Relax-A-Cizor, 4 dial, \$92. 213-422-9561. C

Pups, Labrador retriever, due about April 1, \$65 female; \$75 male. 213-675-3557. C

Roadrace Set, Aurora, HO ga., w/case, 32 ft. of track, many extras & access., \$30. 213-324-3686. C

Organ, Thomas electronic spinet, honey maple, w/bench, \$400. 213-378-1983. C

Typewriter, elec. Smith Corona, long carriage, never used, \$185. 213-662-8283. C

Ski Boat, 14', 65 Merc., \$1,350. 213-320-3014. C

Axle Hitch, Reese leveler, \$25. 213-644-1362. C

Guitar, elec. Orpheus, case, 2 pickups, \$60. 213-633-6106. C

Engagement & wedding rings, 1/4 carat center stone, 3 small stones, white gold, \$300. 213-545-4705. C

Mare, buckskin, 10 yrs. old, \$100. 714-839-3058. C

Skis, Head, 7', w/safety bindings, \$60. 213-838-1670. C

Motorcycle, 1966 Triumph Bonneville, 650 cc, will consider terms for financing, \$800. 213-675-9673. C

Coat, full length, sheared dyed white Beaver w/natural pastel mink boa collar, size 12 to 14, \$800. 714-536-4440. C

Poker Table, octagon, 8 place setting, \$20. 213-430-2619. C

TV, 19" Zenith portable w/stand, \$50. 213-823-2659. C

Movie Camera, Bolex 8mm, mod. P1, 5-1 zoom ratio, extras, \$125. 213-892-5456. C

Room Divider, walnut, modern, \$75. 213-372-7875. C

Slot Car, Cox 1/24 Ford GT & controller, X-250 motor, case, \$7. 213-645-4697. C

Tent Trailer, 1966 Hawthorne Vacationeer, \$325. 213-324-2381. C

Mini-Bike, 4-cy., 3 h.p. Clinton eng., \$85. 213-679-6610. C

Tent, 10'x13' lightweight, umbrella, side rm., \$40. 213-675-3254. C

Ski Rack, roof-type for compact car, \$10. 213-373-2292. C

Manifold, Edelbrock tri-power w/3 rebilt. Rochester 2-bbl. for Pontiac 389, \$90. 213-679-7163. C

Formal, size 5, worn once, \$10. 213-371-3102. C

Stereo, Magnavox, small console, walnut cabinet, \$60. 213-675-1953. C

Playpen, Cosco, net, \$10. 213-323-6745. C

Hearing Aid, Zenith Delegate B, professional fitting guaranteed, \$100. 213-378-5175. C

Pool Table, slate top, 7 mos. old, \$395. 213-671-4538. C

Home, 4-bdrm., tri-level, 6 yrs. old, 3 baths, lge. rumpus rm. w/wet bar, gas air cond., will carry a 2nd, lease for \$350 mo. or \$42,000. 213-831-0480. C

Water Heater, 20-gal., w/gas valve, \$15. 213-370-4458. C

Lens, 150mm Takumar, w/case, \$50. 213-371-4209. C

Radio-TV-Phono, Comb., 21" Packard Bell, \$40. 213-327-8412. C

Air Brush, Binks, mod. A w/jars & hose, \$20. 213-374-6056. C

Cemetery Lots, Harbor View sect., Green Hills Memorial Pk., perpetual care, \$300 ea. 213-326-3135. C

House, 3-bdrm., 2 baths, family rm., view, heated pool, walk to schools & shopping center, P.V. Pen., \$41,500. 213-377-6029. C

Sailboat, 28' wooden sloop, inbd. eng., sleeps 4, \$3,990. 213-378-4352. C

Piano, upright, \$115. 213-295-9997. C

Rifle, .22 cal., semi-auto., Marlin M-9 w/sling, 100 rounds, \$45. 213-671-0175. C

Bicycle, boy's 20" Sears Spyder, \$25. 213-324-5449. C

Wig, reddish brown, hand tied, European hair, \$35. 714-637-5408. C

Ham Gear, SX101A, HT32A & Wartner linear, sell separately or \$465. 714-968-2780. C

Trailer, compact, Field & Stream, sleeps 4, stove, refrig., \$450. 213-671-6288. C

Surfboard, Chuck Dent, 10' 3", \$50. 213-697-2445. C

Lot, large, Lake Havasu City, Arizona, view of lake, 5 min. away, \$7,000. 213-672-0548. C

Lawnmower, 18" cutting width, \$15. 213-323-8213. C

Lawnmower, reel-type, power, \$20. 213-672-3270. C

House, 3-bdrm., white w-w cpt., used brick f/place, 1 1/2 bath, financing avail., 5 1/4% loan, \$30,900. 213-372-2656. C

Motorcycle, 1964 Bonneville custom, \$800. 213-328-9168. C

Boat, 18' Cruizon inbd., 292 cu. in. Ford, 2-bbl. carb., trailer, \$1,150. 714-962-0392. C

Television, 22" Curtis-Mathes, UHF, walnut cabinet, table model, \$55. 213-675-9560. C

Miscellaneous For Sale

House, 2-bdrm., large 145' deep R-2 lot, fenced, rebilt. kitchen & bath, terms, \$18,500. 213-675-3725. C

Extension Ladder, 24', alum. \$22.50. 213-377-4198. C

Box Trailer, 4' x 8' x 18", \$25. 213-371-3660. C

Stole, mink, autumn haze, approx. 75" long, neeus relning, \$850. 213-675-5236. C

Pool Table, 33" x 60", access. incl., \$20. 213-833-9696. C

Colt, thoroughbred, 8 mos. old, \$200. 213-325-8373. C

Mini-Bike, Taco 44, 3 h.p., new clutch, \$100. 213-377-5853. C

Swimming Pool, Doughboy, 25' x 4', filter, access., \$200. 213-370-0990. C

Water Heater, 9 gal. butane, 9 min. recovery, for trailer or cabin, \$35. 213-321-0020. C

Rifle, 8mm Sporterized Mauser, sling, peep sight, ammo., \$55. 714-524-1531. C

Patio Awning, alum., 9' x 14', never assembled, \$150. 213-589-9503. C

Sailboat, 8' Winard Sabot, fiberglass, \$325. 213-376-5139. C

Cabin Cruiser, 17', 70 h.p. Merc. outbd., tilt trailer, canopy, full cover, \$2,200. 213-823-6126. C

Aquarium, 10-gal., w/lighted top, filter, htr., \$20. 213-676-9518. C

TV, 19" Emerson portable, UHF, rollaround cart, \$35. 213-679-1631. C

Guitar, Gretsch Country Gentleman, \$495. 213-375-4448. C

Go Kart, Mac. 101, d/brakes & parts, \$150. 213-675-8421. C

Motorcycle, 1963 Harley Davidson, 74 F.L.H., \$950. 213-329-9154. C

Target Rifle, Walther .22 cal. w/Lyman peep sights, \$60. 213-731-2954. C

Heater, gas, Gaffers & Sattler, o/head type, 2 ft. x 3 ft. long, \$125. 213-327-3458. C

Trumpet, Lafayette, 1 yr. old, \$75. 213-695-8349. C

Liferaft, 2-3 persons, inflatable, handpump & CO-2, w/alum. oars, \$50. 714-539-2098. C

Home, w/pool, 3-bdrm. & den, tropical landscaped, concrete decking rear yd., cpts. & dps., a/c, Granada Hills, existing 5 1/2% loan, \$27,500. 213-355-5446. C

Boat, 12', trailer, 20 h.p. Evinrude, elec. start., \$300. 213-542-3990. C

Tape Recorder, Akai M-5, stereo, \$150. 714-523-2495. C

Airplane, 1966 Cessna 150 Commuter, 50 hrs. S.M.O.H., Crome eng., MK-12, full panel, \$6,200. 213-324-8437, 213-770-1514. C

Turntable, stereo, Garrard SL-55 w/base & cover, \$55. 213-329-1705. C

Wanted to Buy

Dishwasher, in very good condition. 213-323-0826. D

Pistol, .22. 714-828-9256. D

Radio Control equipment, single channel. 213-377-6193. D

Souvenirs of WW II, medals & badges of all nations involved. 213-375-4312. D

Car, wrecked, TR4, TR4A, TR6 or Healey 3000 for fiberrab conversion. 213-695-5682. D

Free (To Be Given Away)

Paddle Board, 12'. 213-677-7421. F

Kittens, 3, different colors, approx. 2 mos. old. 213-672-8629. F

Pup, 8 mos. old, male Labrador, sandy color. 213-370-1296. F

Rentals Offered

Apt, upper, 3-bdrm., 2 baths, cpts., dps., bltins., 2 children O.K., near Northrop, \$185. 213-756-0100. G

House, furn., small 1-bdrm., 2 miles from Plant One, prefer 1 person, no pets. \$115 w/utilities, 213-676-8833. G

Motor Home, sleeps 6-8, fully contained, \$150 wk. 213-679-7378. G

Cabins, Idyllwild, 1 & 2 bdrms., stream, patio, f/place, \$20-\$35 w/end; \$50-\$80 wk. 213-754-5288. G

Rides and Riders

Rides Wanted

7:30 a.m. — 4:15 p.m.

El Segundo & Normandie, Los Angeles. Barbara Herron, Norair ext. 4453, 213-754-3665.

8 a.m. — 4:45 p.m.

Ball Rd. & State College Blvd., Anaheim. Mornings only. To Bldg. Y-1. Nancy Cramond, 714-774-4953.

4:12 p.m. — 1:42 a.m.

El Segundo & Normandie, Los Angeles. Rose Herron, Norair ext. 1582, 213-754-3665.

Rides Offered

8 a.m. — 4:45 p.m.

Private aircraft communting from Orange County Airport, share expenses. Birchard H. Ford, Norair ext. 4481, 714-838-1519.

Rentals Offered

Sleeping Room, utilities furn., pvt. bath & entrance, near Northrop, \$50 mo. 213-676-7328. G

Apt, 2-bdrm., cpts., dps., garb. disp., bltins., small fenced yd., closed gar., all elec., unfurn. \$135; furn. \$155. 213-375-9397. 213-375-2091. G

Cabin, Big Bear Lake, \$30 w/end. 213-867-0662. G

Cabins, Lake Gregory & Crestline, sleeps 6, make reservations for June-Sept., \$25 w/ends; \$60 wk. 213-391-3040. G

Child Care

Child Care offered, ages 2-5, weekly, lic. home, 10 min. from Norair Hawthorne. 213-675-1392. I

Will babysit small children in Redondo Bch., pvt. home w/fenced yd. 213-379-4476. I

Personals

Would like girl to share apt., 3 miles from Electro-Mech. Div., Anaheim. 714-524-2454. L



BIG JOB handling the mail at the Electro-Mechanical Division, Anaheim, is done by only three girls. Above left, Mary Ann Jeffries, with Kathy Ruddy, supervisor, right, operates the postage meter. Insert left, Marlus Crowder separates mail into

delivery bins. Insert right, Beverly Moore starts on mail run through Building Y-3. Right below, Mary Ann makes a delivery to Sherry Burr in Marketing.

Blank Wall Leads to Idea For Continuing Art Gallery

Four years ago Ed Mosher, commissioner, NRC Art Club, saw a blank wall and got the idea for a unique continuing art gallery at Northrop Electro-Mechanical Division.

As a member of the Graphic Arts department as well as the NRC Art Club, Mr. Mosher knew there was a lot of art talent at Northrop.

"Why not," he thought, "put that talent to work decorating the walls for the enjoyment of all personnel?"

Three Goals

First, the idea would provide decoration and beautification of work areas. Then it would give the artists an opportunity to display their paintings. In addition, it would make personnel aware of the art club.

Rain Postpones February NRC Golf Tourney

The regular February NRC Golf Tournament at Northrop Electro-Mechanical Division was played March 8 after being postponed because of rain, according to George Baldwin, NRC golf commissioner. The matches were played at Quail Lake Golf Course near Gilman.

First flight honors went to Vito de Paul, first place. Bob Yarbrough, second, and Don Larson, third.

Second flight winners were: Bill Berger, Ray Buchanan and Ken Davis.

The regular March tournament will be played March 29 at Shorecliffs Country Club, San Clemente.

ACHIEVERS

(Continued from page 1)

uct, a safety flare kit.

Junior Achievers participating were Dave Morin, Frank Lauro, Jim Clark, Sue Jones, Linda Kroll, and Janice Scheier. Northrop advisors, in addition to Mr. Varner and Mr. Myers are Tom Sneed, marketing advisor; Tom Maxwell, production advisor; and Bob Barry, financial advisor.

Anyone wishing to buy highway safety flares, please contact the Junior Achievement advisors at Anaheim.

The suggestion was approved both by company executives and club members. Since that time hundreds of paintings have been displayed on a rotating basis.

An important feature of the continuing exhibit is the monthly one-man show in the lobby of Building Y-3.

Motivation

Mr. Mosher pointed out that some of those now exhibiting never dreamed of becoming artists until they became interested after seeing the exhibits. "We got them to join the club and helped them get started," he said.

"It is a mistake to think of the club as a guild of old masters," Mr. Mosher added. "We have top-notch professionals for members, of course, but we also have amateurs who paint just for fun. There is room for every class in our club. All you need is the desire to learn. Then, who knows, maybe we'll be hanging your paintings in our monthly one-man show. It has happened."

Among the Northrop artists whose work has been displayed in the continuing exhibit are Harold Leff, Charles Felder, Bob Peck, Fred Bailey, Jack Flanagan, Richard LeBlanc, Jim McCarthy, Verda Campbell, Minor Campbell, Peggy Lambert, Stan Vosberg, Art Wiseman, Ted Witsil, and Don Lovelace whose one-man show was featured in February.



POSITIONING of a painting in Don Lovelace's one-man show occupies, from left, Jack Flanagan, Joyce Hatfield, Ed Mosher, Dolly Brown and Dick LeBlanc of the NRC Art Club.

Tremendous Mail Load at Anaheim Received, Delivered by Three Girls

It takes a lot of work—and miles of walking—for three girls to receive, dispatch and make interplant delivery for the average 88,200 pieces of mail that pass monthly through the Mailroom at Northrop Electro-Mechanical Division.

According to Kathy Ruddy, supervisor, Communications and Mail, the division receives each month 18,000 pieces of U.S. mail, dispatches 10,000 letters and 200 parcel post packages, and makes delivery of 60,000 pieces of interplant mail.

Busy Trio

All this volume is handled by three people, Senior Mail Clerk Mary Ann Jeffries, and Mail Clerks Beverly Moore and Marlus Crowder.

Delivery alone to the 240 mail stops in the buildings at Anaheim requires the three girls to make a total of 13 delivery runs daily walking about five miles each.

In an average month each mail girl will walk 110 miles or almost three times the distance to San Francisco each year.

The problem of handling the mail is complicated not only by the large volume—more than one million pieces a year—but also by the weight.

A survey, directed recently by M. E. Skilling, chief plant engineer, Industrial Engineering, showed that personnel receive through the company mail about

one-half ton of magazines each month.

"This is one place where it might be possible for our personnel to help us reduce our tremendous mail volume," Mr. Skilling said. "It would help speed up our deliveries if personnel could have as many of these technical magazines as possible sent directly

Potluck Dinner, Dessert Contest Planned by Club

A "sweet time" is promised attendees at the Northrop Electro-Mechanical Division Women's Club Potluck Dinner Meeting March 31 at the NRC Clubhouse, according to Ann Dean, president. They plan to have a dessert contest.

In addition to the dish each attendee will bring to the potluck dinner, each will bring a favorite dessert to enter in the "sweets" contest. Judges will be Randy Lee and Chet Guzinski, Mrs. Dean said.

Club members will furnish the entertainment and will include songs by Donna Robison, a skit on "Our Favorite Recipe" written by Rebecca Harkey and acted out by May Rock and Peggy Horton, and a Can-Can dance by Gloria Munoz, Ida Scheick and Jan Brink.

Tickets are available from Mildred Williams, Page Court; Donna Robison, Employee Relations; Florence Correll, Manufacturing Cost Control; Gloria Munoz; Production; Carm Warn, Payroll; and Rebecca Harkey, Support Depot.

MARK SIZELOVE WINS CONTEST

Mark Sizelove, 16, son of Jerry Sizelove, Electro-Mechanical Division Industrial Security office, was a double winner in the Veterans of Foreign Wars recent high school speech contest.

He took first place in the local Laguna Beach competition and second place in the district contest and will compete in the regional division at Lake Elsinore later.

The contest speech topic was "The Challenge of Freedom." Entrants had to write and deliver their own speeches.

to their homes. Also, if our technical library copy will suffice, why not cancel the subscription entirely? When you are handling six tons of magazines annually, every bit of reduction helps and increases our ability to give better service on other important mail deliveries."

Mrs. Masterson Does Man's Job At Drill Press

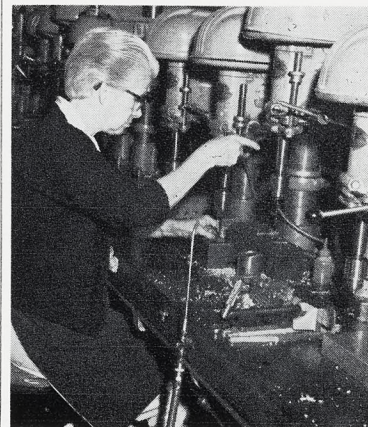
Ruby Masterson, the only woman drill press operator in the Anaheim department of Northrop's Electro-Mechanical Division, began this type of work to help out in World War II. She liked it so well that she has made a career of what is usually considered a man's job.

Mrs. Masterson started with Douglas in 1943. Later she dropped out of machine shop work, but returned when there was a demand for skilled workers during the Korean War. She came to Northrop in 1953 and will observe her 16th anniversary on the job in April.

When Mrs. Masterson began work on a drill press here, there were 16 other women doing similar work. They have all since moved on to other jobs, but she has remained because she enjoys the work.

At the present time she is operating a drill press, but over the years she has operated every type of machine in the shop.

While this kind of work is usually thought of as "a man's job," she doesn't view it that way. "There's no such thing as a man's job or a woman's job," she said. "It's the job of whoever can do it."



Mrs. Masterson

NORTHROP NEWS

ELECTRO-MECHANICAL DIVISION EDITION

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Committee Looks At Supervisory Selection Criteria

Long range projections indicate growth in size of both the Northrop Electronics and Electro-Mechanical Divisions. This growth will increase the demand for management personnel. To meet this need criteria to identify, select and prepare personnel for supervisory positions are being developed by an interdivisional committee, according to Tom Brady, research specialist with Industrial Relations and committee chairman.

Working Together

Members of the committee include Tom Barry, TEAMS program manager and Grant Gunderson, production chief, Electro-Mechanical Division; Dave Jenkins — Electronics Division procurement chief; and Industrial Relations personnel including Tom Finn, Electronics Division; Dave Chalk, representing both divisions, and Dr. Woody Senderling, management consultant.

"Three surveys are being conducted to assist in developing these criteria," Mr. Brady said. "One is an internal survey of current practices in the divisions. The second is an in-house survey of employee feelings about opportunities for personal growth with Northrop. The third is an external survey to determine the experience of other companies with similar development programs."

Procedure

The committee will review the findings of this over-all study effort and make recommendations to further define the existing selection process.

It is the Northrop practice to afford as many employees as possible the opportunity to advance to positions of greater responsibility. Looking at current

(See SELECTION, page 6)

Page Court Foremen Go To Work Simplification Class

Ten supervisory employees at Page Court are attending a Work Simplification course taught by Joe Khalil, tool engineer, 747 Stringer Program, who has had a wide background in work simplification techniques.



Mr. Khalil

The course is designed to teach personnel how to simplify and be more creative in decreasing the amount of work necessary to achieve the same results.

This is the first time the course has been presented at Page Court. It was requested by Don McInnis, director of Ordnance and C. T. Tucker, chief of Ordnance Production.

Those now attending the class



JOE HALL, Polaris Program engineer, who was one of the original designers of DATICO X, points out some of its features to Tom Quayle, left, Anaheim department manager, and Ralph Dix, Polaris/Poseidon program manager and also a member of the original DATICO X design group.

Helpful Suggestions Bring Checks for Awards to Nine

Ted Stec, machine parts inspector and John Kopytra, precision tool inspector, both of Page Court, led the Suggestion Award program this month when they shared equally in a \$590 award for a joint idea. Checks were presented to the two men by Tom Quayle, manager, Anaheim department.

According to Larry King, Suggestion Award administrator, the two men suggested use of long travel dial indicators with reverse dials to measure linear dimensions in a single setup on a bench comparator in the Ordnance Receiving and Fabrication Inspection section.

are Jayce Alexander, Walter Brown, Steve Hanussak, Dan Hudson, Lacey Husted, Leonard Jackson, Charles Williams, Richard Vener, Tex Robinson and Wilson Walker.

The course deals with the theory and practices of work simplification as applied to production operations.

A previous course, "Techniques and Fabrication of Production Stringers," was organized by Mr. Khalil last year and presented to Y-12 personnel at the request of D. A. Niccoli, chief of Production. This resulted in reducing rejects and scrap on the 747 stringer line by approximately 50 percent.

Stanley Hoinski is scheduled to replace Mr. Khalil as instructor this week.

The second largest award went to Esther V. Hinojosa for suggesting a revised form 1941 for keypunch processing. Prior to Mrs. Hinojosa's suggestion, these tags were handwritten for each printed circuit card produced. Her suggestion, which permits the cards to be keypunched and handled with labor cards, brought her an award of \$346.

Many Active

Others receiving suggestion awards were:

K. L. Orrick received \$173 for a suggestion to use available hydraulic press to stamp identifications on metal strips after they come from the roll taper machine on the stringer line.

George Pappas' idea to replace an expensive patented tapping compound with a solution of lanolin and kerosene brought a check for \$132.

Jacqueline Y. Delaine proposed relocating the drilling machine on the assembly line at Page Court to a central point where she could work from left to right without turning. The suggestion, which brought a check for \$58, improved production.

Less Strain

Earl R. Claussen suggested changing from a manual to a pneumatic brake on a lathe at Page Court. This now permits operators to stop the spindle quickly and uniformly with less strain on operator and machine. He received a \$42 check.

Gail P. Davis devised a check list to cover most of the possible variables in preparing a proposal or report. The list is used by those preparing proposals to note the desired format. Secretaries follow the check list, reducing supervi-

(See SUGGESTIONS, page 6)

Display Honors Decade Of DATICO-X Growth

Honoring a decade of successful participation in the Polaris Program, DATICO X—the original equipment with which Northrop introduced Military Automatic Testing concepts to the world of electronics, is now on display at the Northrop Electro-Mechanical Division in Anaheim.

Large Family

Since its completion under a company program in August 1957, DATICO X — for Digital Automatic Tape Intelligence Checkout — has sired more than 100 test systems. These include Polaris, Poseidon and TEAMS. TEAMS — for Test Evaluation and Monitoring Systems — is the latest member of the DATICO family. It is being built in Anaheim to go aboard 46 of the latest U.S. Navy destroyer escort ships.

"The DATICO family of automatic test systems has meant an average of 550 jobs to the community over the past 10 years," Tom Quayle, Anaheim department manager, said.

"When Northrop engineers began work on DATICO X, checkout and test of electronic components was done by a multitude of single or limited purpose instruments," Mr. Quayle added. "The Northrop concept envisioned combining these into a single complex of broad applicability."

The Beginning

The result of a study of industrial and defense needs, DATICO X was developed as an engineering model. The first production DATICO's were used by the U.S. Army at its Erie and Pueblo depots to check out a variety of missile components.

DATICO was next used by the U.S. Air Force to check out radio

receivers, radar equipment and autopilot sets. DATICO proved reliable, durable, flexible and versatile in meeting the production line pace at the depots.

In 1959 Northrop was asked to produce equipment to check out the Polaris missile system. An accelerated development and production program permitted the Anaheim department to deliver a unit to the first Polaris submarine, the George Washington, SSB(N) 598 within six months.

It was the last committed system on the Polaris submarine and the first delivered and accepted. The latest and most advanced application of the DATICO system is in the U. S. Navy Poseidon program.

The system, built to standards specifying 2,000 hours of operation before major overhaul, actually performed 20,000 hours before a major overhaul.

(See DATICO X, page 6)

Service Pins Due For Twenty-Three Northrop Vets

Electro-Mechanical Division personnel becoming eligible for service pins in April include two for 20 years, nine for 15, and 12 for ten.

The 20-year veterans are Clark M. Edwards and Russell Meyer. Those completing 15 years include Louis J. Soucek, Joe J. Shaffer, Lloyd M. Shipley, Irwin W. Shuman, Thomas J. Arbericci, Arthur A. Echel, Jr., Victor D. Crawford, Adela E. Martinez, and Helen Bean.

(See SERVICE, page 6)



SUGGESTION AWARD CHECKS are presented to Ted Stec and John Kopytra by Tom Quayle, manager, Anaheim department. With them are Al Goodale, supervisor, left, and Don McInnis, director of Ordnance, right. In photo at right is Jackie Delaine who receives a suggestion award check from Ordnance Assembly General Foreman E. M. Wylie.



Donald White Given Sloan Fellowship for MIT Study

Donald H. White, Norair director of Business Systems Management, has been selected a Sloan fellow to study advanced management techniques at Massachusetts Institute of Technology (MIT).



Mr. White receiving Sloan Fellowships this year.

"This year we have chosen fellows from among the largest number of applications we have ever received," Dr. Peter P. Gil, MIT associate dean for executive program, said. "The 1969-70 class promises to be a diverse group of exceptional talent with a wide range of managerial experience."

The MIT-Sloan Program is one phase of Northrop Corporation's over-all program for developing management personnel in antici-

pation of greater responsibilities, according to John Rushmer, Corporate director of Management Development.

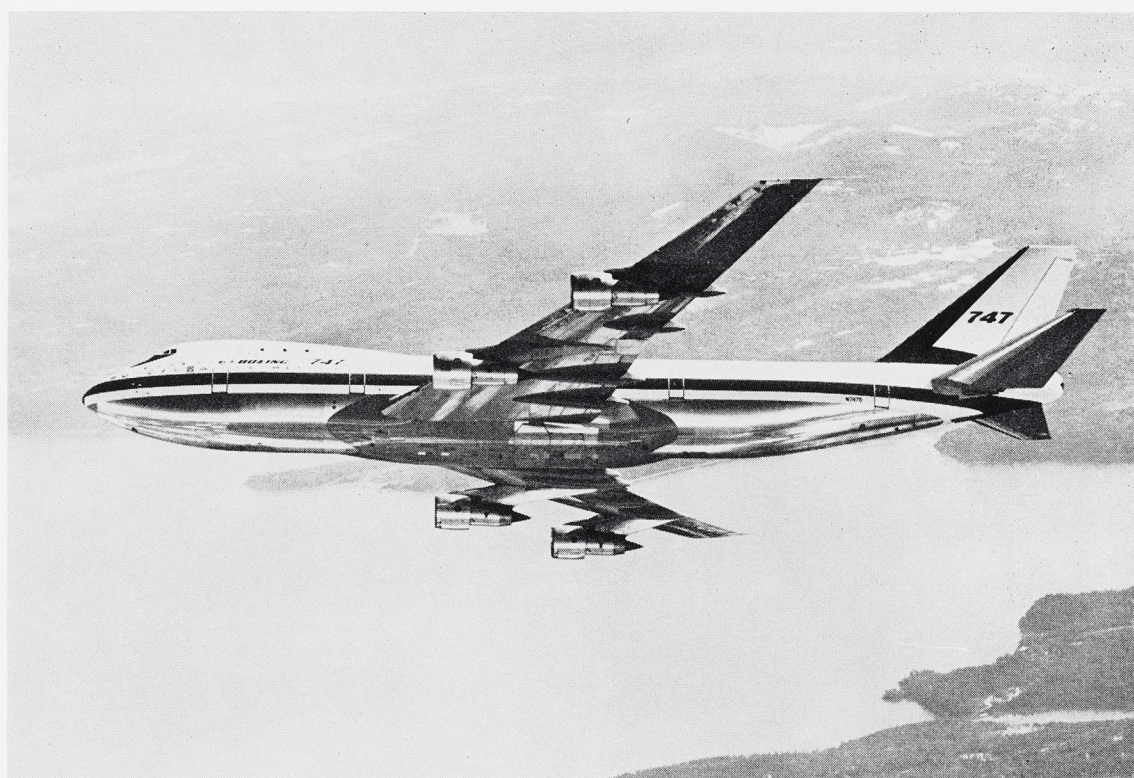
F. W. Lloyd, vice president and Norair general manager, nominated Mr. White for program consideration. Thomas V. Jones, president and chairman, made the final selection among Northrop candidates.

Northrop's first MIT-Sloan fellow, Robert W. Young of Ventura Division, completes his study program in June.

A native Californian, Mr. White holds an A.B. in economics and an MBA in business administration from Stanford University.

He joined Acme Metal Molding Company as controller in early 1959. After Acme was acquired by Northrop and subsequently made a part of Northrop Architectural Systems, Mr. White held two key management posts, that of vice president and assistant general manager and vice president - Sales and Marketing.

Mr. White transferred to Norair Division in May 1967 as deputy director of Management Systems and assumed his present duty in July 1967.



GRACEFUL LINES of the Boeing 747 are shown as it banks in flight test. Test program involves most extensive and sophisticated array of test equipment ever carried aloft. Note large oval shaped dark area on fuselage beneath

wings. This is general outline of 80-foot long wing fairings built by Northrop Ventura. Norair fabricates 153-foot long section of center fuselage.

ABOARD BOEING 747

Flight Test Instrumentation Impressive

The largest, and most sophisticated, amount of flight test instrumentation ever carried aloft by a commercial flight test aircraft is now being utilized aboard the first Boeing 747 jetliner.

This flight recording and monitoring equipment yields approximately 1,300 different measurements, plus motion pictures of the flight control surfaces, crew, recording instruments, runway and underside of the aircraft.

Total flight test equipment weight is approximately 60,000 pounds, or about the same as a fully-loaded B-17 bomber of the World War II era.

200 Miles

There are approximately 100 miles of wiring aboard for flight test purposes alone, in addition to the 747's normal complement of more than 100 miles of wiring.

A pulse code modulation sys-

tem measures quasi static conditions. Two FM (frequency modulation) tape recording systems and a third FM wide band system continuously record dynamic functions. Four oscillographs record on paper landing gear loads and conditions plus control surface positions for immediate graphic analysis.

Still More

An on-board computer feeds true airspeed and altitude information to the flight test gyroscope package. Accelerometers mounted on the plane's control surfaces, engines, fuselage and wing tips record flight data which is relayed to the ground.

More than 175 ballast containers help alter the aircraft's center of gravity. The 55-gallon water barrels are mounted in two lower deck cargo compartments and the main deck aft of the wings. Water is transferred variously from barrel to barrel to determine the effects of weight and center of gravity changes on the jetliner's over-all flying stability.

Cameras Galore

On-board camera equipment is mounted in the cabin, cockpit and underside of the aircraft. A time code generator simultaneously records the data and time of day, down to seconds, on all film

and recording tapes.

Two independent airborne devices measure static pressure of the air for later correlation with the jetliner's airspeed calibration system. One is a trailing "bomb" (named for its shape) unreeling from beneath the aircraft to measure pressures 250 feet below, out of the slipstream. Another is a "cone" unreeling from the plane's tail and towed 250 feet behind. It makes static air pressure measurements at speeds above 250 knots.

When Boeing completes the year-long flight testing of the 747, the five-plane superjet flight test fleet will have logged approximately 1,400 hours of flight time. This will make the 747 the most thoroughly tested jetliner ever to enter commercial service.

ICE CAPADES

A savings of \$1.50 per ticket is being offered Northrop family members planning to attend the 5 p.m. May 4 performance of Ice Capades at the Los Angeles Sports Arena.

NRC has obtained 1,000 of the best seats for this presentation and offers regular \$5 tickets for \$3.50 each. Buy them at Personnel Activities outlets.



SEAPOWER—Joe Enright, Northrop Marketing representative, second from left, explains the operation of the Northrop-built Marine Omega receiver to Secretary of the Navy John H. Chafee, center. Listening to the conversation are Admiral I. J. Galatin, chief of Navy Material, right, and Mason Shehan of the Navy Regional Office, left. The meeting took place inside the Northrop exhibit at the recent Sea-Air-Space Exposition in Washington, D.C.

NORTHROP NEWSMAKERS

Betty Jones, the wife of Jack Jones, Norair, is among candidates seeking election to the Lawndale Elementary board of trustees. The election is April 15.

Betty Briggs, Norair, was feted with a farewell coffee at the Santa Fe Facility and later a dinner by her friends on the eve of her retirement. Mrs. Briggs has worked at Norair 26 years, a majority of the time as an aircraft dispatcher.

R. E. Helm and F. St. Germain, Norair, are co-authors of a paper titled "Development of an F-5 Boron-Epoxy Contoured Landing Gear Door" for presentation at the AIAA/ASME's 10th Structures, Structural Dynamics and Materials Conference in New Orleans.

Chintsun Wang and Wendy Pi, Norair, will also present a paper on "Random Acoustic Response

of a Cylindrical Shell" at the same conference in New Orleans, April 16-17.

Dr. K. M. Mitzner, Norair, has prepared a paper titled "Electromagnetic Scattering from Symmetric Bodies" for presentation at the 1969 spring International Radio Scientific Union meeting, Washington, D.C.

August O. Quenon, Ventura, has received a certificate of completion after a 10-week course for Defense Department program managers at Wright-Patterson Air Force Base, Ohio. The course covered Defense Weapon Systems Management.

Lee Hausman, Electro-Mechanical, is one of six candidates seeking three seats on the Fullerton Elementary School board of trustees.

Two European Vacation Tours Booked By NRC

The NRC Travel Clubs are planning two fall trips to Europe. Both 21-day vacation jaunts will leave Los Angeles September 20 and return October 11.

The British Isles tour will include Germany, The Netherlands, England, Ireland and Scotland. The Southern Europe tour includes Germany, Italy, Switzerland, France, London and The Netherlands.

The package tour is \$695 for double occupancy rooms. Single occupancy rooms are \$35 extra.

The Electro-Mechanical Division Travel Club will hold its first European trip meeting on Monday, April 14 at 7:30 p.m. at the NRC Clubhouse, 1834 West Valencia, Fullerton, according to Randy Lee, tour coordinator.

"Ron Pfahler, Trans Globe Travel, will show movies of the countries the tour covers," Mr. Lee said. "Reservations will be accepted at this time. A deposit of \$230 is required."

A later meeting will be scheduled in the Los Angeles area to accommodate personnel outside the Orange County area, Mr. Lee said.



ROLL OUT THE BARREL—More than 175 ballast containers, each a 55-gallon water barrel, are being used in 747 flight test. They help alter aircraft's center of gravity when water is pumped variously in barrels.

Northrop Aerial Shuttle Service Vital Link to Desert Facilities

"This is the only way to travel," said one engineer as he debarked from the Northrop shuttle aircraft at Hawthorne.

"Yeah," said his companion. "And it beats taking the freeway, too."

The two men were returning home after spending the day at the Northrop Flight Test Facility at Edwards AFB.

Time Saver

If they had taken the freeway their trip would have lasted at least two hours and 30 minutes. But aboard the Northrop aerial shuttle they were home in 45 minutes.

Northrop flies 10 roundtrip flights daily over the San Gabriel Mountains to its desert facilities at Palmdale and the Flight Test Center at Edwards AFB. Its aircraft are three Piaggio P-166's—in use since 1961.

The three Piaggios average approximately 12 hours in the air each working day. There are 200 flights each month, and more than 12,000 passengers rode on the airline last year.

"The Piaggio is an excellent

airplane for our specific mission," said Max Stanley, chief of Flight Operations. "Because of the short distances involved in most of our flights, speed is not important. However, the airplane is easy for passengers to board, the cabin is large, comfortable and has excellent visibility under all-weather flying conditions."

Without passengers the airplane can carry 1,500 pounds of bulky freight, and still have enough fuel for a comfortable roundtrip to Edwards AFB. "We can carry 150 pounds of cargo to Edwards with a full seven-passenger load," Mr. Stanley said.

All Piaggio pilots are Air Transport Rated. Each has over 10,000 flying hours. They have a combined total of 175 years flying experience.

Busy Skyway

"We average about 60 hours in the air each month," said Tom O'Malley, veteran Northrop pilot. "That may not sound like much, but when you consider that most of it is spent in high density areas it's a lot harder than making long hauls."

As a comparison, Mr. O'Malley

pointed out that last year alone he made over 1,000 landings. "A commercial pilot is lucky to make 200 a year," he said.

According to Maintenance Chief Orby Blair, the Piaggios are a "mechanic's dream."

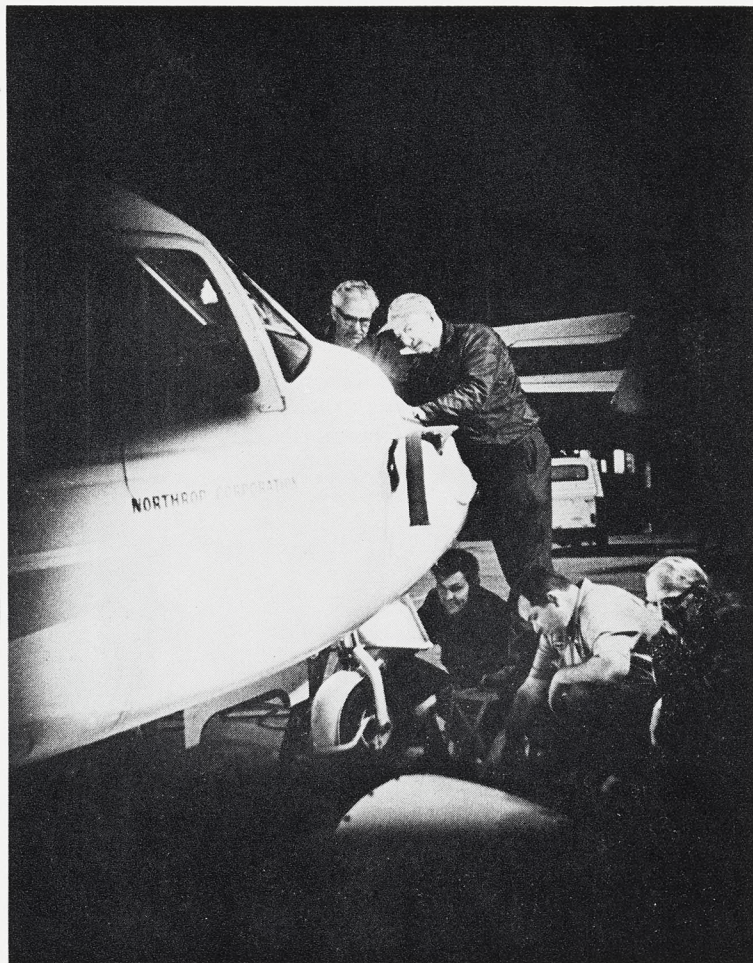
He said that all maintenance work is done at night and that four men can change an engine in 5½ hours. "She may not be the prettiest airplane in the world, but she's a workhorse."

Hilltoppers

Since the shuttle service began in 1942, aircraft such as the Cessna UC-78, Twin Beech, Lockheed Lodestar, DC-3 and Aero-commander have been used by Northrop to fly "over the hill."

"There is no way to estimate how much money the airline saves the company each year," commented Mr. Stanley. "Frequently a vital part or instrument is needed for a critical test flight at Edwards. Delays to test programs are costly. We can deliver the missing part from the main plant in 30 minutes."

"And, like the man said, it does beat the freeway."



NIGHT MECHANICS—Keeping the Piaggios flying is the job of the night maintenance crew, from left, Leo Norman, Darrell Ragan, George Warwick, Frank Frye and Gordon Barber, crew chief. These men can change an engine in five and one-half hours. Not pictured is Al Taylor, radio man.



DAY MAINTENANCE—Mike Chatman, second from left, hands gas hose to Fred Dehart while Milt Olson, right, crew chief, explains a repair order to Orby Blair, maintenance chief.



FINAL CHECK—Tom O'Malley, Piaggio pilot, makes final instrument adjustments prior to takeoff from Hawthorne Airport. Mr. O'Malley has been a pilot since 1929.



REGISTRATION—George W. Mihelic, Jr., left, flight dispatcher, helps Joe A. Clouthier complete flight form prior to boarding Piaggio aircraft.

'MAC' MC CONNELL

NRC Coach Has Won 20 Championships

In 13 years of coaching Norair seasonal sporting teams, Dolphe (Mac) McConnell has compiled a record that even Vince Lombardi or Casey Stengel would envy.

Since he joined Northrop in 1956, Mac, who works in Planning in Plant One, has led Norair NRC flag football, basketball and softball teams to 20 championships.

At one point in his coaching career, from 1960 to 1962, all three of his teams won their respective league championships.

But more important than his

outstanding record on the field, is the dedication he has to NRC activities at Northrop.

"He has probably put more years in the sporting department of Personnel Activities than any other employee," said Don Greco, Norair Employee Relations representative.

"And even more important," Mr. Greco added, "is Mac's ability to bring people together from all areas of Norair. He truly performs a valuable service to Northrop."

In addition to the number of hours he spends coaching, Mac has found time over the years to serve as NRC basketball and softball commissioner, and Plant One representative for all NRC activities.

As an athlete, Mac played half-

back on the Texas Tech Red Raider team that dominated the Border Conference in the late '40s and early '50s. In 1949, he was runner-up for the Lubbock, Texas, Golden Gloves welterweight championship.

Mac says he plans to continue coaching until he gets tired of it. "And that," he states, "will never happen."

EXCURSION SET BY NRC SKI CLUB

Northrop's Ski Club is planning a group excursion to the Mammoth area April 18-20 for a maximum of 38 people. The fee ranges from \$25.50 to \$29.50 per person, dependent upon accommodations.



Mac McConnell

WHAT DO YOU THINK?

If You Could Change Places With Any Celebrity, Who Would It Be



Mr. Moore

William Moore, manufacturing program coordinator, Norair:

I'd like to be owner of a topnotch horse racing stable. I was at Santa Anita the first day it opened, and I've enjoyed the sport ever since.

Alice Williams, Security clerk, Electronics:

I never wanted to be any kind of celebrity. I'm happy the way I am. I just wouldn't like all the notoriety.



Mrs. Williams



Mr. Newcomb

Matt Newcomb, electrician, Ventura:

Bus Mosbacher, the international sailing figure. Maybe with his skill I wouldn't lose my mast (as I did recently) on my 21-foot sloop.



Mrs. Schulz

Betty Schulz, senior clerk, Electro-Mechanical:

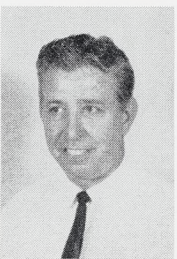
Over the years I have greatly admired the various First Ladies. I think that is whom I'd like best to be—provided, of course, I could keep my present First Gentleman.



Mrs. Ennis

Vivian Ennis, designer, Norair:

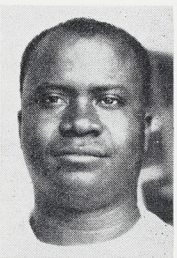
I don't want to be a celebrity. I think they're pretty miserable people. They have the constant clamor of the public and I just wouldn't care for that. I'm perfectly happy being myself.



Mr. Bacon

Don Bacon, Property Operations coordinator, Electronics:

I wouldn't trade places with anybody. In my opinion nobody could have a better life than I have had. And if I had it to do all over again I would do it the same way.



Mr. Cain

Louis Cain, Plumbing shop, Industrial Engineering, Electro-Mechanical:

I think I'd pick Howard Hughes. With a large amount of money like he has I could do a lot to help my friends and my people. And I could do a lot for me, too.



Mrs. Ellisen

Gladys Ellisen, Payroll, Ventura:

I'd have to say Mrs. Nixon. Then I'd be in the spotlight all the time. But I wouldn't trade husbands. I've had the same one for 27 years—too long to trade.

DISNEYLAND NIGHT TICKETS ON SALE

Regular ticket outlets throughout Northrop facilities in the Southland are now offering "Northrop Night at Disneyland" duets for sale.

Slated for May 24 from 8:30 p.m. to 1:30 a.m., this event finds

all of the facilities of the "Magic Kingdom" reserved exclusively for Northrop families. A \$3.75 per person ticket buys admission and unlimited use of facilities during this period.

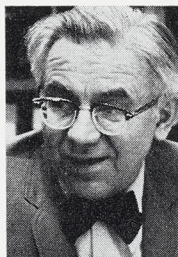
KNACKE GOES HOME

East Germany Visit Is An Eye Opener

"The place hadn't changed but the people had."

That's what Theo Knacke told the Northrop News after returning from a visit to his native city of Neustrelitz in East Germany. He hadn't seen it since 1944.

Mr. Knacke is a member of technical management, Advanced Landing Systems, at Northrop Ventura. He spent 13 days behind the Iron Curtain visiting his father, 88, and mother, 83.



Mr. Knacke

The city of 30,000 "was my home town, where I grew up and went to school," he explained. "Most of the buildings and stores are still there, but the way of life is much different.

Regulations

"The main difference with life in the U.S.," he said, "is that over there, every phase of daily life is regulated by the government.

"If you want a plumber, you don't just look one up in the phone book. You call the bureau in charge of plumbing repairs, they call the people in charge of plumbers who then call the people in charge of plumbing parts. And, then, finally you get a plumber."

Social services provided by the government are more elaborate than those in the U.S.—where Mr. Knacke has lived since 1946—"and they have a very ambitious educational program."

Firsthand

By checking with the local police ahead of time he was allowed to visit with educators, local government officials and other people. "I had heard a lot about East Germany but I wanted to see for myself."

He found "probably the biggest bureaucracy in the world." He said, "the number of people working for the government in white collar jobs is very high. And the educational system just produces more and more."

Although they knew they were

talking to an American citizen, the East Germans spoke candidly with Mr. Knacke (who speaks fluent German). "People in the United States very definitely enjoy a higher standard of living and appear to be happier in their way of life."

Mr. Knacke said he had little "trouble" crossing the border in

his rented Western car. "But I took nothing for granted. As a Westerner I requested permission before going anywhere. Officials were polite and cooperative."

Does he plan to go back? "Yes, in about three years." He has a sister in East Germany and three brothers and sisters in West Germany.

Vietnam Veteran Prepares Family For His Homecoming

(Editor's Note: The following letter was received by Mrs. Joyce Oaks, assembler, Hawthorne, to prepare her for the return of her son, Sgt. Michael J. Oaks, from a 14-month tour of duty in Vietnam. The contents of the letter should be amusing to employees who have loved ones in Vietnam. It will give them an idea of what to expect from their "soldier" upon his return to the United States.)

Make Ready

"In the very near future your son will once more be in your midst. In making your joyous preparations to welcome him back into an organized society, you might take certain precautions, for he may still be suffering from Vietnamitis or Overseasitis and should be handled carefully.

"Therefore, show no alarm if he insists on carrying a weapon to the dinner table, looks around for his steel pot if offered a seat, or wakes you up in the middle of the night for guard duty. Don't lose your cool if he puts gravy on his peaches, or drinks from a can. Pretend not to notice if he eats with his fingers and refuses a napkin, because he's already wiped his mouth with his shirtsleeve. Take it with a smile when he digs up your garden to fill sandbags for the bunker he's building.

No, No

"Restrain yourself from mentioning powdered eggs, dehydrated potatoes, fried rice or recombined milk. Wait until he leaves the room before you take the dishes out of the garbage can,

and if he insists on drinking out of a canteen cup, let him. Also if it starts raining, pay no attention if he pulls off his clothes, grabs a bar of soap and runs outdoors for a shower.

"When in his daily conversation he utters such things as 'Chein Hoi,' or 'Xin Toi' just be



Sergeant Oaks

patient. By chance if he gets a snarl on his face, leave the room as fast as possible.

Just Me

Above all, keep in mind that beneath that tanned rugged, exterior there is a heart of gold (the only thing of value he has left). Treat him with kindness, tolerance, and an occasional beer, and you'll be able to rehabilitate that which was once the happy guy you knew and loved.

"So fill the icebox with beer, get the civies out of mothballs, fill the car with gas, and get the women and children off the street . . . because your son is coming home!"

NO MONEY SO...

Necessity Turns Adams Into Gunsmith

When Clarence "Pappy" Adams—now a general machinist at Electro-Mechanical Division's Page Court facility—was a 25-cents-a-day apprentice during the depression, he didn't make enough to buy a .22 rifle. And that sad fact eventually developed him into a master gunsmith.

When the 15-year-old boy couldn't buy the gun he'd set his heart on, his father suggested he make one. He did and it worked, starting him on a lifetime hobby of making and customizing guns.

Later Pappy—the name was tagged on him by his B-29 crew in World War II—joined the Air Force. His worldwide travels were a spur to his development as a gunsmith. Wherever he served he hunted up local gunsmiths and factories to learn new secrets in building guns.

He visited gunsmiths and companies in Italy, Spain, England and the Orient. He couldn't always understand what they were saying, but he could understand what they showed him. "We con-

versed in everything from pidgin English to sign language," he said. "And I learned a little more each place I went."

After he returned to the States, he set up a gunsmithing shop in his home where he made about five complete custom rifles a year.

He left the Air Force in 1945 and returned in 1951 for service

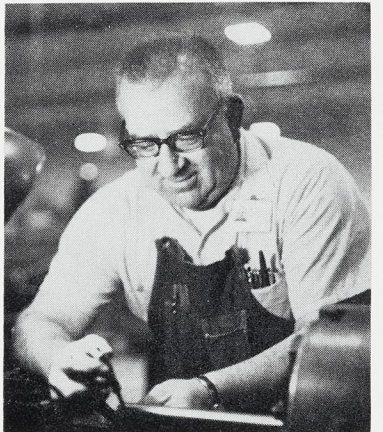
in the Korean War, staying until he retired in 1962.

Since becoming a machinist in Tool Maintenance, he has again set up a complete gunsmithing shop in his home. "It's so much fun I can't stop it," he said.

While he used to do considerable stock work, now he confines himself mostly to metal work. His favorite work is rebuilding military guns into sporting rifles. This he does by improving the sighting system, precision chambering and rebarrelling to get extreme accuracy, and designing custom triggers among other specialized work.

He has 18 guns of his own, including five shotguns, 11 rifles, and three specially customized rifles.

While he does some work for his friends and others, mostly his work is on his own guns simply because the thrill he got making that first .22 as a 15-year-old boy is still with him when he works on the guns in his collection today.



Pappy Adams

Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale
Station Wagon, 1958 Plymouth, \$280. 714-847-3249. A
Comet, 1952, 2-dr., auto., r/h, \$425. 213-328-3306. A
Station Wagon, 1959 Dodge, 4-dr., 9-pass., \$50. 213-675-2159. A
Corvette, 1967 fastback, 327 cu. in., 4-spd., posi., many extras, \$3,795. 213-674-2603. A
Chevrolet, 1955, 2-dr., 3-spd., \$330. 213-374-4944. A
Ford, 1964 Falcon, 37,000 mi., \$600. 213-672-1716. A
Ford, 1961, 2-dr. h/top, auto. trans., p/s, V-8 eng., \$125. 213-862-9136. A
Buick, 1959 2-dr., p/s, \$350. 213-882-1861. A
Chevrolet, 1959, 2-dr. Biscayne, V-8, standard w/o drive, htr., \$250. 213-324-2381. A
Mustang, 1965, 289 V-8, 4-spd., \$995. 213-674-3264. A
Volkswagen, 1968, r/h, \$1,750. 714-530-1406. A
Station Wagon, 1962 Ford, fact. air, p/windows, \$900. Box 601. A
Station Wagon, 1965 Chevrolet Impala, new tires, a/c, \$1,350. 213-374-8090. A
Volkswagen, 1965, radio, \$1,100. 805-495-4571. A
Buick, 1968 Electra 225, air, all elec., FM stereo, 4-dr. h/top, \$4,100. 213-377-6352. A
Studebaker, 1962 Lark Daytona cpe., V-8, auto. trans., r/h, \$525. 213-431-0789. A
Chevrolet, 1966 Biscayne, 2-dr., 396, 4-spd., posi, \$1,600. Box 602. A
MG, 1954 Model TF, 1250 cc, new top, side curtains, tires, o/hailed eng., numerous small parts, \$1,000. 213-596-7098. A
Thunderbird, 1957, new paint, \$1,495. 213-465-8684. A
Volkswagen, 1965 Squareback Variant S, radio, \$1,200. 714-847-0648. A
Chevrolet, 1962 Impala, 2-dr. h/top, 327 h.p., 4-bbl. carb., race cam, 4-spd., many extras, \$895. 213-474-8640. A
Pickup Truck, Chev., w/Open Road camper, 283 V-8, 8-ply tires, many extras, \$1,850. 213-376-7569. A
Volkswagen, 1967 Westphalia camper, pop-up top, tent, radio, \$2,495. 213-676-2813. A
Chevelle, 1965, V-8, 238, 2-dr. h/top, r/h, p/s, auto. trans., \$950. 213-644-6615. A
Tempest, 1963 LeMans cpe., 326 cu. in. V-8, auto. trans., r/h, shift console, \$625. 213-376-3351. A
Jeep, 1960 CJ6, 4-wheel dr., new paint, top, & hubs, \$1,150. 213-644-5668. A
Corvette, 1968 cpe., 427, 390 h.p., AM-FM radio, 4-spd. trans., \$4,500. 213-391-3451. A
Ford, 1965 390, 4-spd., \$1,300. 213-329-4224. A
Pontiac, 1964 Grand Prix, p/s, p/b, r/h, \$1,000. 213-370-0991. A
Volkswagen, 1967, under 25,000 miles, \$1,600. 213-323-3005. A
MG, 1966 convt., o/drive, rack, radio, \$1,475. 213-645-4163. A
Ford, 1966 GTA 390, vibrasonic radio, p/s, velvet touch brakes, \$1,675. 213-372-8375; 213-372-3470. A
MG 1100, 1963, new U-joints & brakes, \$400. 213-377-6435. A
Volkswagen, 1965, extras, \$1,000. 213-421-8069. A
Ford, 1962 Falcon, a/c, r/h, \$300. 213-671-9371. A
Chrysler, 1960 300F, 413 cu. in. ram, full power, posi., \$350. 213-534-1028. A
Rambler, 1959 2-dr. h/top, Hydramatic, \$150. Box 603. A
Falcon, 1963 Sprint, V-8, 4-spd., \$600. 213-373-3205. A
Volkswagen, 1967 Fastback, AM-FM radio, extras, \$1,650. 213-323-8089. A
Oldsmobile, 1961 4-dr. 98, h/top, \$395. 213-679-7405. A
Dodge, 1967 Coronet 440, 4-dr., V-8, p/s, a/c, auto. trans., \$2,500. 213-323-2304. A
Chevrolet, 1966 Caprice, full power, a/c, 2-dr. h/top, 396 V-8, \$2,000. 213-644-3146. A
Rambler, 1966 Ambassador, V-8, p/b, p/s, a/c, AM-FM radio, \$1,400. 213-877-3633. A
Ford, 1964 Galaxie 500, 4-dr., V-8, p/s, p/b, a/c, r/h, \$945. 213-675-2331. A
Chevrolet, 1959 Biscayne, 2-dr., 6-cyl., stick shift, r/h, \$150. 714-842-7641. A
Station Wagon, 1964, Ford Fairlane 500, auto. trans., \$750. 213-645-8611. A
Renault, 1966, auto. trans., \$750. 714-828-2450. A
Ford, 1958, 2-dr., \$185. 213-329-1723. A
Station Wagon, 1965 Chev. Impala, 9-pass., all power, \$1,895. 213-673-1133. A
Corvette, 1963 Stingray convt., 2-tops, 327 cu. in., 300 h.p. 4-spd., AM-FM radio, full power, \$2,000. 213-644-8011. A
Firebird 400, 1967, convt., many extras, \$2,400. 213-373-1275. A

Automobiles For Sale
Mustang, 1966, V-8, auto., fact. air, p/s, \$1,875. 714-527-5506. A
MG 1100, 1963, 2-dr., r/h, d/brakes, stick shift, \$250. 213-675-6277. A
Toyota, 1968, 2-dr. h/top, auto. trans., \$1,800. Norair Credit Union, ext. 1117. A
Chevrolet, 1964 impala h/top cpe., all extras, air, \$1,200. 213-324-5709. A
Station Wagon, 1947 Jeep, 2-whl. drive, completely o/hauled, \$500. 213-837-9767. A
Chevrolet, 1966 El Camino, 283 cu. in., 4-spd., AM-FM radio, fiberglass bed cover, \$1,800. 714-527-5212. A
Continental, 1967 4-dr. sed., auto., air, leather, power, \$3,300. Norair Credit Union, ext. 1117. A
Mustang, 1967 GT, many extras, 28,000 mi., \$2,400. 213-377-3532. A
Volkswagen, 1966 Squareback, \$1,500. 213-934-5295. A
Station Wagon, 1957 Chevrolet, \$350. 213-671-3725. A
Falcon, 1960, \$150. 213-374-9944. A

Household Items For Sale
Sectional, curved, 3-pc., corner, turquoise, \$100. 213-324-7209. B
Dresser, custom-made, w / mirror, walnut, w/queen size bed, box springs & mattress, \$125. 213-678-9395. B
Bar Stools, 2, yellow pad w/antique white legs, \$20 ea. 213-457-9186. B
Lounge Chair, tweed, w/matching ottoman, \$40. 213-542-2954. B
Stove, Delux, 5-burner, gas, \$50. 213-323-4288. B
Table, round, 4' dia. w/2 extension leaves, Salem maple finish, 1 yr. old, \$50. 213-374-4703. B
Dryer, Kenmore, gas, 7 mos. old, \$90. 213-675-1884. B
Light, modern, 5-lamp, \$20. 714-968-5343. B
Refrigerator, G.E., 1967, w/19.2 sq. ft. freezer, holds 150 lbs., coppertone, \$200. 714-870-1998. B
Bed, twin, mattress & box spring, \$50. 213-371-5373. B
Refrigerator, coppertone, 13 cu. ft., \$50. 213-328-4128. B
Stove, O'Keefe & Merritt, \$25. 213-374-1133. B
Sectional, brown & white tweed, 4-pc., curved, \$55. 213-635-3127. B
Stove, apt. size Gaffers & Sattler, used 6 mos., \$55. 213-644-8075. B
Crib, mattress, other items, sell sep. or \$40. 213-371-1949. B
Chest-of-Drawers, 2, 4-dwr. & 2-dwr., \$8 ea. 213-430-2619. B
Stove, 1967 O'Keefe & Merritt, coppertone, broiler & grill, \$150. 213-329-1664. B
Dishwasher, portable, General Electric, top loading, white, \$65. 213-671-7184. B
Dresser, Bassett, child's, 6-dwr., \$50. 213-376-4831. B
Bedroom Set, mahogany, dble. bed, triple dresser & mirror, 2 night stands, chest-on-chest of drws., mattress & box spring, \$250. 213-679-5195. B
Stove, General Electric, pushbutton elec., \$175. 805-498-8202. B
Breakfast Nook, 5 1/2'x5 1/2', avocado naugahyde, no legs table, extra chair, \$65. 213-378-5742. B
Table, dropleaf, birch, 42" wide, extends to 74", \$35. 213-832-3755. B
Coffee Table & end table, walnut, Formica top, \$15 ea. 213-674-5424. B
Bed, 4-poster, maple, dresser, \$75. 213-325-8313. B
High Chair, chrome, \$15. 213-324-4817. B
Refrigerator, 15 cu. ft., turquoise, \$125. 213-325-4303. B
Bed, twin, maple, \$20. 213-372-3827. B

Miscellaneous For Sale
Motorcycle, 1966 CB 160 Honda, \$325. 213-675-2813. C
Trailer, 16', 1960, Eastern built, fully insulated, fully contained, sleeps 6, \$550. 213-370-2828. C
Mini-Bike, Byrd, w/3 1/4 h.p. eng., lug. rack, d/brake, \$100. 213-375-8804. C
Dog House, for small dog, \$4. 213-645-2711. C
Bicycle, 24" girl's Higgins, \$20. 213-675-3431. C
Camera, Polaroid w/flash, \$30. 714-541-9796. C
Rifle, 6.5x55 Swedish, custom stock w/Lyman 4X scope, \$185. 213-676-4251. C
Guitar, triple pickup, elec., \$55. 213-882-0761. C
Mini-Bike, Taco 44, 3 h.p., many extra parts, \$95. 213-645-4697. C
Lens, 400mm, f5.6 Vivitar, fits most 35mm's, \$70. 213-374-6056. C
Razor, Sunbeam Shavemaster 777, \$10. 213-378-5175. C
TV, b&w, 23" Dumont, mahogany console, FM radio, \$50. 213-321-0020. C
Shotgun, Remington mod. 870, 12 ga., 3" mag., 30" bbl., full choke, \$100. 213-830-3816. C
Condominium apt., 4-bdrm., 2-car gar., swim pool, club house, close to El Camino College, 10% dn., \$29,950. 213-327-3160. C
Water Cooler, for auto, \$15. 805-498-8461. C
Guitar, 5-string classical, \$45. 213-676-6761. C
Poodle, toy, male, black, purebred, 6 wks. old, \$35. 714-528-9227. C
Mower, rotary, \$35. 213-329-9982. C
Camera, Polaroid, auto. 103, w/flash attachments, \$25. 213-372-8334. C

Miscellaneous For Sale
Motorcycle, 1968 Yamaha, 350 cc Scrambler, \$650. 213-534-3100. C
Trailer, 14' Crown, 2 yrs. old, incl. awning, \$600. 714-772-2018. C
Target Rifle, Walther, .22 cal. w/Lyman peep sights, \$60. 213-731-2964. C
Wedding Gown, size 10, straight flr. length, long lace sleeves, scalloped neck w/pearls, sep. train, \$30. 213-644-8485. C
Pups, Labrador, AKC, black & yellow, all shots, 10 wks. old, \$65-\$100. 213-377-6658. C
Dog, German short hair pointer, female, 2 1/2 yrs. old, \$50. 213-676-9593. C
Tires, 2 F-78-14, 7.75x14 Goodyear Polyglas, less than 100 miles, \$40. 213-377-4528. C
Bicycle, boy's, English, needs paint, \$10. 213-371-3079. C
Cabin Cruiser, plywood, V-bottom, 22' Correct Craft, sleeps 4, Gray Marine eng., many extras, \$2,200. 213-329-4503. C
Airplane, 1944 Howard DGA 15P, needs right wing, \$2,200. 805-944-2678. C
Clarinet, Martin Freres, w/case, \$95. 213-833-9696. C
Wig, 100% human hair, light auburn, \$30. 714-826-4031. C
Golf Clubs, 1967 DX M/T Tourney, D2 swing weight, 2-9 irons, pitching wedge, \$65. 213-676-4217. C
Pups, beagle, \$20 ea. 213-832-8705. C
Kittens, Balinese & Burmese, eligible for reg., \$50. 213-675-5406. C
Wheels, 4 split rim & new Firestone Transport 110 2 6-ply tires w/3 8-ply rims for Ford truck, \$250. 714-827-7189. C
Oboe, Baxter-Northup, \$100. 213-644-3376. C
Pups, boxer, AKC reg., 2 females, 6 wks. old, \$5 & up. 714-534-3669. C
Camping Trailer, Scotsman, sleeps 5, stove, sink, ice box, new awning & poles, \$495. 213-676-5219. C
Motorcycle, 1966 Triumph Bonneville, 650cc, extras, \$850. 213-363-3843. C
Camera, Minolta SRT-101, single lens reflex w/55mm, f:1.7 lens & leather case, \$160. 213-477-7741. C
Air Conditioner, for auto, Mark IV, complete, \$50. 714-842-2276. C
Acceage, 10 acres, Acton, near Palmdale, water district, trees, terms, \$35,000. 213-377-1074. C
Land, remote 2.5 acre parcel from Spanish Land Grant, off Ortega Hwy., 8 miles from San Juan Capistrano, \$4,000 dn., \$14,000. 714-428-4553. C
Camper, 1967 10 1/2' Westways, full cabover, La Jaga jacks, extras, \$1,595. 213-631-6763. C
House, 3-bdrm. & den, 2 1/2 baths, rumpus rm. & 1/2 bath, swim. pool, approx. 1,900 sq. ft., bltin stove, \$32,000. 213-327-8412. C
TV, b&w, console, 23" RCA, VHF & UHF, \$50. 714-842-1143. C
Air Conditioner, 5000 cfm evaporator, w/pump & float, \$50. 213-679-8644. C
House, Spanish stucco, custom bltins, 2-bdrm., h/wood floors, zoned 4R, all fenced, lge. storage bldg. on business frontage, 3 miles N.E. of Norair, \$21,500. 714-642-2616. C
Lot, 1/2 acre, pvt. water supply, 2 miles from Lake Isabella boat landing, \$4,950. 805-482-0122. C
Surfboard, Greg Noll, 1 yr. old, \$65. 213-754-3801. C
Stereo Console, G.E., AM-FM radio, Garrard auto. turntable, \$150. 213-329-1843. C
Workshop Manual for Austin Healey Sprite, MK 2, 3 & 4 or MG Midget Mk 1, 2 & 3, \$7.50. 213-671-0925. C
House Trailer, 1962 Angelus, 35'x8' wide, 1-bdrm., carport, furn., \$2,000. 213-532-8936. C

Miscellaneous For Sale
Pups, Labrador retriever, black, AKC, females, \$65; males, \$75. 213-675-3557. C
Movie Camera, Anscomatic ST87, zoom lens, auto. lightmeter, \$40. Box 604. C
Surfboard, Bing, V-bottom, \$50. 213-377-948. C
Camera, Retina IIIc, f/2.0 lens, case, 80mm telephoto & 35mm wide angle lenses, \$130. 213-670-2564. C
Enclosure, & speaker, walnut Jensen Bass Reflex, Roger Charles triaxial 12" spkr., 40-18000 HTZ, \$50. 213-943-5842. C
Stoway, roof top, vinyl coated twill cover, locking zipper flap, made for VW, \$20. Box 605. C
Filing cabinet, 4-dwr., letter size, wood, \$10. 213-379-1708. C
Motorcycle, 1967 Honda, \$250. 213-672-2338. C
Conversion, Century model, 300 h.p. for butene operation of car or truck, w/control panel, \$145. 213-782-1813. C
Mobile Home, 12'x50', 2-bdrm., w/2 rooms added on, bltins in copper, refrig., 5'x7' shed, in adult park, Redondo, \$4,500. 213-324-2021. C
Home, 6 yrs. old, 4-bdrm., tri-level, 3 baths, lge. rumpus rm. w/wet bar, gas air cond., 15 min. from Northrop Palos Verdes, will carry 2nd, \$42,000 or lease \$350. mo. 213-831-0480. C
Engagement & wedding ring, 1/2 carat center stone w/smaller stones, yellow gold, \$300. 213-322-5930. C
Lawnmower, Huffy, 21" elec. rotary, \$20. 213-674-3843. C
Transmission for 1936 Cadillac, \$10. 714-838-7161. C
Motorcycle, 1965 Triumph Bonneville, \$800. 213-372-2602. C
Uniforms, 3, white, sizes 7 & 9, \$10 ea. 213-644-4164. C
Motorcycle, 1966 Honda CB 160, new eng., Bell helmet, \$275. 213-375-4530. C
Seat, rear, for Dodge Sportsman's Custom van, \$40. Box 606. C
Motorcycle, BMW R50, w/fairing & windshield, \$895. 213-371-0127. C
Drum Set, 5-pc., 2 yrs. old, \$150. 213-675-5701. C
Camera, 8mm Bell & Howell, w/projector, screen & viewer, \$95. 213-294-7348. C
Own-Your-Own Apt., 1-bdrm., upstairs, cpts., bltins, dps., pool, \$15,500. 213-674-7743. C
Golf Clubs, woods, irons, bag & putter, \$80. 213-545-2047. C
Surfboard, Mobley Pintail V, \$80. 213-374-8608. C
Stereo, Magnavox console, AM-FM, phono, mahogany, \$75. 213-542-3697. C
Aircraft Radio, new Hughes 338, weighs 3 1/2 lbs., complete, \$180. 213-324-6770. C
Precision Tools, machinist's, Gerstner tool box, \$320. 213-667-2504. C

Wanted to Buy

Tool Box, rollaway-type, in good condition. 213-679-5204. D
Revolver, Colt or Great Western, single action, 5 1/2" or 7 1/2" bbl., pay up to \$50. 213-532-7634. D
Outboard Motor, any make, 35 or 40 h.p., elec. start. 213-644-3424. D
Incubator. 213-323-9586. D
Bed, queen size, mattress & box spring, good condition. 213-329-7447. D
Rifle, Winchester, model 94, 32 Special, good condition. 213-323-4257. D
Lawnmower. simple manually operated type. 213-378-7479. D

Rides and Riders

Rides Wanted

7:30 a.m. — 4:15 p.m.

Lynn Rd. Highway Overpass, Thousand Oaks. Walt Knox, Norair ext. 2675, 805-495-0305.

Western Ave. & Lomita Blvd., Lomita. Occasional ride. J. L. Micallef, Norair ext. 4874, 213-534-5350.

Rides Offered

7:30 a.m. — 4:15 p.m.

Lynn Rd. Highway Overpass, Thousand Oaks. Walt Knox, Norair ext. 2675, 805-495-0305.

For Trade

Corvair, 1962 Monza, r/h, auto. trans., trade for pickup truck, bus or van, in equal condition. 213-390-2958. E

Free (To Be Given Away)

Pups, 4, part toy fox terrier, mostly black. 213-374-5133. F

Rentals Offered

House, 2-bdrm., den, dining rm., cpts., dps., bltins, gar., close to transportation & shopping, \$185 mo. 213-674-7131. G

Duplex, 2-bdrm., cpts., dps., bltins, patio, fenced yd., children, pets OK, avail. April 16, \$175 mo. 213-379-4476. G

Duplex, 2-bdrm., unfurn., 1 block off Mariposa, fenced backyard, 1 child OK, water pd., \$135 mo. 213-322-4624. G

Home, 2-bdrm., Manhattan Beach, yard, children OK, no pets, furn., \$205; unfurn., \$180. 213-373-4756. G

Bachelor Apt, furn., upstairs, for 1 person, \$75. 213-676-5921. G

Cabins, Lake Gregory & Crestline, sleeps 6, make reservations for June-Sept., \$25 w/ends; \$60 wk. 213-391-2040. G

Cabin, Big Bear Lake, \$30 w/end. 213-867-0662. G

Cabins, Idyllwild, 1 & 2 bdrms., stream, patio, f/place, \$20-\$35 w/end; \$50-\$80 wk. 213-754-5288. G

Rentals Wanted

House, 2-bdrm. unfurn., w/cpts., dps., disposal, gar., in North Redondo, N. Torrance, or S. Hawthorne, will pay up to \$150 mo. or will consider fixer upper for lower rent. 213-370-2100. H

Child Care

Babysitting, my home, across from Ramona School. 213-675-1953. I

Child Care, during day, 4 blocks from Anaheim facility. 714-772-7193. I

Child Care offered, licensed, fenced yard, weekly, 5 min. from Norair. 213-532-9717. I

Personals

We wish to thank all our Northrop friends for their sympathy & kindness during our bereavement. JO HODGES & VI CORBIN. L

For Sale or Trade

Metropolitan, 1959 2-dr. h/top, \$150 or trade for truck, 1/2-ton, same year or newer. 213-830-5284. M

Units, 7, in Cathedral City, \$39,000 or trade for home, So. Bay area. 213-379-7379. M

Mangle, elec. Bendix, \$40 or trade for electric train. 213-597-5232. M

Ford, 1966 LTD sedan, 4-dr. h/top, p/b, p/s, \$1,850 or take lower priced car in trade. 714-638-5068. M

Piano-Accordion, 120 bass Scandallii, \$150 or trade for transportation car. 714-847-2648. M

Station Wagon, 1959 Ford Country Sedan, auto., T-Bird V-8 eng., p/s, p/b, r/h, \$355 or trade for 8' camper in good condition to fit Ford pickup w/8' bed. 213-326-4898. M



A BUSY PLACE — Northrop Norair's Plant Three where components for the Boeing 747 jetliner are fabricated is a beehive of activity. While The Boeing Company carries out an extensive flight test program on initial aircraft (see story, page 2), Norair is working to complete fuselage assemblies for subsequent production models. Scene above looks into the high

bay area from the mezzanine of the low bay area. Additional Northrop efforts on the 747 are being carried out at Northrop Ventura where wing fairings are produced; at Electro-Mechanical Division, producers of structural stringers; and Northrop Pacific, Inc., fabricators of sandwich-type flooring for passenger and cargo compartments.

Honey of Job Done by Tom Stacks With Bees

Northrop has a man for every job—and that includes beekeeping.

Recently when a swarm of bees was discovered in an orange tree

by the Electro-Mechanical Division headquarters in Anaheim, Tom Stacks knew exactly what to do. He has been keeping bees for 23 years himself.

Donning his beekeeper's hat and veil, he sawed off the limb, extracted the honeycomb and gathered the swarm in a box.

Mr. Stacks, a retired Northrop employee, worked 17 years in the Paint shop, first in Hawthorne and then at Anaheim. He now works part time as a substitute security officer at the Electro-Mechanical Division.

Invaders

Mr. Stacks first became interested in beekeeping when an unwelcome swarm took over the inside wall of a garage he converted into a workshop at his home in Norco.

He consulted a beekeeper in Riverside for advice on how to get rid of them. He came away with instructions on how to keep them instead.

And he has been at it ever since.

He occasionally gets stung but he wouldn't trade his hobby with anyone because it is a honey of an avocation.

Tom Buckley Led Deep Sea Anglers On March 8 Trip

Topping his 27 fellow fishermen on the March 8 jaunt of the NRC Deep Sea Fishing Club was Tom Buckley who snagged a 10½-pound red rock cod, Club Commissioner Edward G. Robertson reports.

Next after Mr. Buckley, who took the Jackpot Fish Award of a fishing reel, was Charlie Boles. Mr. Boles won a fishing rod for his 9½-pound red rock cod.

The deep sea fishing trip was made aboard the 65-foot Fury around Santa Cruz and Anacapa Islands. Total catch was more than 200 fish, Mr. Robertson said.

The club is always open to new members. Details and future trip plans may be obtained from Mr. Robertson at Anaheim ext. 318 or from Personnel Services, ext. 244.



BUSY AS A BEE himself is Tom Stacks as he removes a swarm of bees from an orange tree at the Electro-Mechanical Division headquarters building.

AF Honors James Unmack For Handbook on Lasers

Captain James Unmack, USAF, a former Northrop employee, has received the Air Force Scientific Achievement award for developing an official handbook on use of lasers.



Captain Unmack

Captain Unmack, whose father is a tool engineer at Norair, worked with the Skybolt program until 1964

when he left to return to college.

After attaining his master's degree in bio-engineering, he joined the Air Force. He is now stationed at the Air Force School of Aviation Medicine, Brooks AFB, Texas.

According to the citation, Captain Unmack's handbook will become an Air Force manual and is called "a milestone in preventive medicine" for being the first complete work of its kind on lasers.

Gun Club Describes Home Projects

The Electro-Mechanical Division's NRC Gun Club has started a new program to "let the members know what the other fellow is doing," according to Club Commissioner Charles Fox.

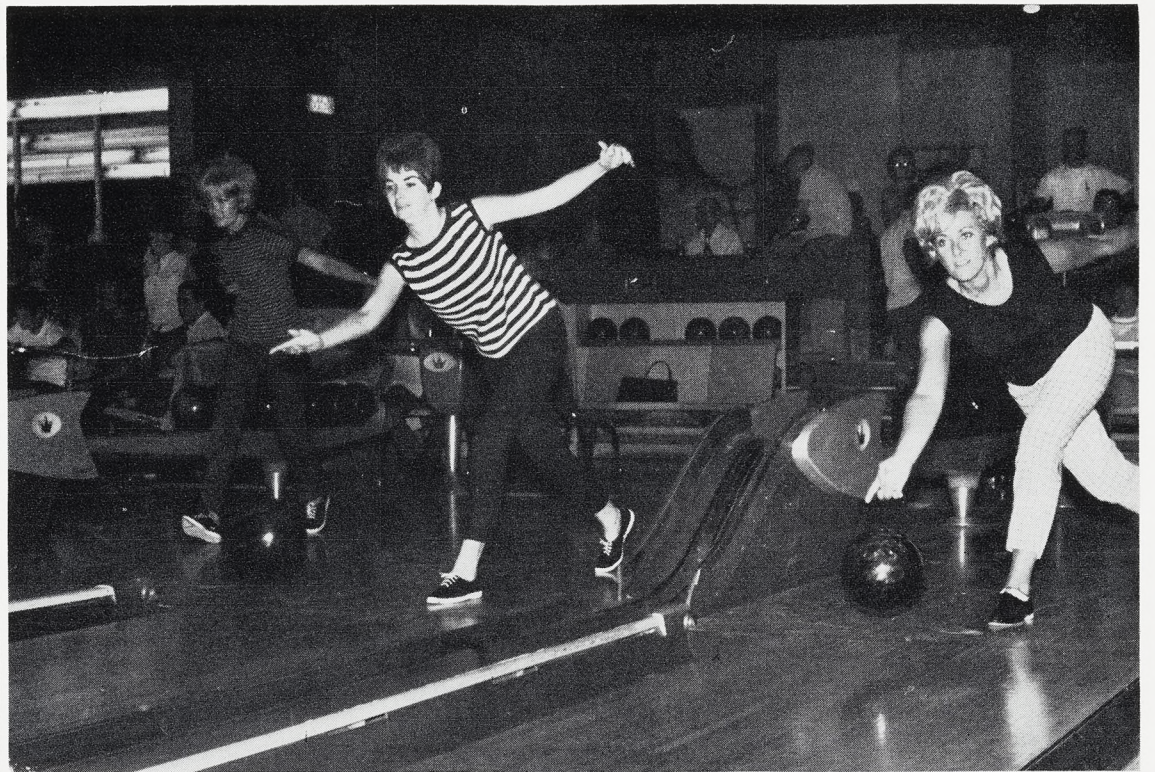
At each meeting one of the members describes his latest workshop project and passes along tips of benefit to the rest of the club.

Opening talk in the new program was a description of his

methods of restocking rifles made by Commissioner Fox.

The second in the workshop description talks was Vern Rand's explanation of "wax loads" for inexpensive indoor target practice. Mr. Rand has worked out a new approach which he described.

Other similar informative talks by members are scheduled for future meetings, Mr. Fox said.



GETTING IN SHAPE for the summer bowling league at the Electro-Mechanical Division are (from left) Pat Freiss, Bev Crawford and Jan

Brink. Call has been sounded for teams or individuals to fill league rosters. Photo by Harry Dent, NRC Camera Club.

Summer Bowling League Seeks Teams

Teams for the summer bowling league, NRC Bowling Club, Electro-Mechanical Division, are now being formed, according to Vito De Paul, commissioner.

"Teams will be mixed fours—two men and two women," Mr. De Paul said. "If you can't organize a team, then put your name in as a single or as a cou-

ple. We will try and put a team around you."

The league's summer bowling will start Tuesday, May 6, at 6:30 p.m. at Carter Bowl, Fullerton.

"While the deadline for registering is April 30," Mr. De Paul said, "we would appreciate everyone signing up as quickly as pos-

sible so that we can reserve enough lanes."

The winter league, still in session, drew 160 entrants.

DATICO X

(Continued from page 1)

As a result of this performance, Northrop was awarded contracts to produce checkout equipment for all maintenance levels of the Polaris Program. This equipment and succeeding models found wide application in missile production line acceptance testing, in depots and shore based facilities as well as aboard submarine tenders and submarines.

SERVICE

(Continued from page 1)

Ten-year pin eligibles are Gertha Riggs, John C. Sullivan, Laural Robinson, Kenneth D. Morrison, Charles Black, James P. Harrington, Ralph Hamrick, Ralph M. Row, Jr., Donalee J. Dewey, Anita Dean, June H. Little and James Gisbrecht.

Stanley Oster Makes Hit As Brooklyn Character in Play

Other actors get Oscars, but an Electro-Mechanical engineer got an Oster for his acting.

The "Oster," a gold cardboard figure that vaguely resembles the movie Oscar, appeared on the desk of Stanley Oster the morning after he made his dramatic debut as a telephone man in the Neil Simon play, "Barefoot in the Park," staged by the Temple Beth Emet Sisterhood Players.

Mr. Oster doesn't know who

presented him the award. It could have been any of his 100 co-workers who were on hand for his first—and last, he says—stage role.

It wasn't his intention to become an actor. He agreed only to read a part during rehearsal until a suitable actor was found. He did so well the director stopped looking.

"After all," Mr. Oster said modestly, "the part called for a lad from Brooklyn and as it happens I am a lad from Brooklyn. Pure type casting."

SELECTION

(Continued from page 1)

management personnel of the Electronics and Electro-Mechanical Divisions, 95 per cent of these people have advanced through in-house promotion.

"The present studies are designed to yield two desirable end products," Mr. Brady explained. "Selection criteria will be sharpened to insure that high standards of supervision are maintained in periods of growth. Also, our people who are interested in management opportunities will have clearer direction in pursuing this aspect of their personal development."

SUGGESTIONS

(Continued from page 1)

sion and assuring a uniform document. She was awarded \$15.

Adolfo Lacayo suggested a method of hand grinding on pylon castings to shift alignments. He received a \$10 check.

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STANLEY OSTER acts like "kid from Brooklyn" with Fifi Sherman in rehearsal for his stage debut.

NORTHROP NEWS

ELECTRO-MECHANICAL DIVISION EDITION

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Division Plans, Progress Told In Annual Meetings With Personnel

A review of past and future activities of Northrop's Electro-Mechanical Division was made by Frank Lynch, division general manager, and Tom Quayle, manager, Anaheim department, in a series of meetings with all personnel in Anaheim.

In his opening remarks Mr. Lynch reviewed the past year's performance, noting that activity had followed much the lines he

predicted in a similar address last year.

"Sales were a little better than predicted," he said, "and this was the third straight year of good strong work activity."

"Division performance has been excellent," Mr. Lynch went on. "We met all customer requirements in performance, quality and cost, fulfilling our customer responsibilities in the out-

standing manner which has become an Anaheim tradition. This type of work and reputation is our most precious asset and insures job security for all of us."

Touching on the relationship between personnel and management in this division, Mr. Lynch commented on the current efforts of the UAW to organize the corporation. The fundamental employee relations policy of the company directed to making and keeping Northrop a "good place to work" was reviewed.

"The best interests of our people have been served by mutual trust, confidence and cooperation under conditions and procedures that have provided opportunity, working conditions and compensation equal to or in some cases better than industry standards," Mr. Lynch said. "We maintain an effective grievance procedure that utilizes binding arbitration. All of this has been accomplished over the past 30 years without the interference of any third party who holds other interests from those of our Northrop employees."

Mr. Lynch then introduced Mr. Quayle. Mr. Quayle, oldest man in point of service with Northrop, mentioned that he had recently returned to Anaheim after eight years with other Northrop activities.

(See MANAGERS, page 6)

Snoopy Pins Given to Two

Two members of Brown and Root/Northrop have received "Snoopy the Astronaut" awards for professional excellence on the Apollo manned space flight program. They are Fred Wilson and James E. Turner, Jr.

Brown and Root/Northrop is a joint venture of Brown and Root and Northrop to contribute to the country's space effort.

The award, a pin showing cartoon character Snoopy in space-suit expressing his happiness, was made to the BRN men by Captain Walter M. Schirra, Jr., USN. It was made in appreciation of the work done by Mr. Wilson and Mr. Turner on the "water wings" which stabilized the Apollo capsule in the water.

Made His Day

"No one can appreciate as fully as the flight crew the importance of systems reliability throughout the space vehicle," Captain Schirra wrote to the two men. "When the water wings inflated properly and brought our inverted spacecraft back over to a Stable One condition on landing, it made my whole day."

"I know of the responsible role you personally played in assuring that this system would function as planned. You also made it possible to verify the integrity of this system without time-consuming teardown and replacement."

"Thanks again from the three of us and best wishes for continued achievement in your careers."



IT'S TIME AGAIN to change clocks for Daylight Saving Time. If you have trouble deciding if your clock goes ahead or back next Sunday, then sympathize with Linda Brood, Industrial Relations clerk. She must set her hour glass ahead one hour to be in tune.

Junior Achievement Group Named 'Company of Year'

Keiko, the Northrop-counseled Junior Achievement Company, has been chosen "Company of the Year" in competition with 16 other Junior Achievement companies counseled by leading industrial firms in Orange County.

Junior Achievement teaches the principles of free enterprise by assisting high school students from the surrounding area to set up, manufacture and sell a product of their own choosing during the school year.

Judging for the Orange County competition was made in Pomona. Keiko was represented at the judging by Tom Manoogian, president, and Linda Kroll, treasurer. Judging was based upon the company's management and records.

The company was organized as a corporation in October 1968 and began to show a profit in December, according to Bob Varner, Northrop, management advisor to the company. Capital stock, sold for one dollar a share, is now worth \$2.22. Mr. Varner, speaking for himself and the other advisors, stated that they have received a tremendous amount of satisfaction from working with the Junior Achievement Program.

Other Northrop advisors are Tom Maxwell, production; Don Myers, operations; Bob Barry, finance; Tom Sneed, sales; and Ken Terry, Industrial Relations coordinator.

Tom Quayle, Anaheim department manager, helped start the Junior Achievement program here nine years ago. Mr. Quayle extended his congratulations to the students in the award-winning company and to their Northrop advisors.

"In my opinion," Mr. Quayle said, "the Junior Achievement Program is one of the finest programs of community service that we can support."



EMPLOYEES, left above, hear Frank Lynch, Electro-Mechanical Division general manager, right above with Tom Quayle, Anaheim department manager and Don McInnis, director of Ordnance, while below, Ila Alexander, Barbara Warren, Mildred Williams, Mae Taylor, Nancy Vorman, and Arlene Stewart serve coffee and doughnuts. Mr. Lynch's talks are part of the company policy to keep personnel fully informed.

Utilities Conservation Pays Excellent Savings Dividends

The Utilities Conservation Program, Northrop Electro-Mechanical Division, begins its second year today, April 23, according to M. E. Skilling, chief plant engineer, Industrial Engineering group.

"The program was initiated April 23, 1968," Mr. Skilling said. "Our goal then was to achieve a direct saving of at least \$4,000 a month on electric, gas, water and fuel oil bills."

Making Progress

When the program started, the division's annual budget for utilities was \$376,000 for fiscal year 1968. The FY-1969 budget was set at \$336,000. It now appears that the actual expenditures will be even less.

While the program was initiated and is monitored by the Industrial Engineering group, credit for the highly successful first year reductions is placed by Mr. Skilling on the division's first line supervisors and their cooperation with Willard Wade who operates the program.

"It was their initiative in bringing conservation practices to

the attention of our production line and office personnel and the wholehearted cooperation of everyone who have given us a most successful first year under the Utilities Conservation Program," Mr. Skilling said.

A number of special programs was instituted to aid in utilities conservation. Special meters were set to measure the maximum electric demand. Operating schedules were then adjusted to start up heavy loads off-peak which resulted in a reduction of electric costs.

Utilities were shut off in areas that were temporarily not in use. Thermostats were added to the fire pump engines to shut off the

(See SAVINGS, page 6)

Kessler Joins IDEP Workshop

David Kessler, Quality and Reliability Management, Electro-Mechanical Division, will participate in the Seventh Annual Workshop Conference of the Interagency Data Exchange Program (IDEP).

IDEP, chartered by the Army, Navy, Air Force and NASA, has more than 200 participating aerospace/defense contractors in the United States and Canada. It provides for interchange of data on components, manufacturing techniques and technical information.

Mr. Kessler is the Northrop Electro-Mechanical Division IDEP representative and is also chairman of the Contractor Advisory Board of IDEP which is making arrangements for the three-day meetings.

The workshop conference will be held beginning May 21 at the Sheraton-Belvedere Hotel, Baltimore, Maryland.

Ten Go To Annual YMCA Breakfast

Ten members of the Electro-Mechanical Division represented Northrop at the Second Annual Good Friday Breakfast for business and professional men sponsored by the Anaheim YMCA and the Orange County YMCA.

Those attending were R. C. Dix, R. L. Gibney, C. M. Hargrove, E. T. Jessick, R. J. Lawther, D. C. Loomer, M. A. Severson, R. L. Stuffer, and G. F. Wajda.

The attendance was part of the division program to participate actively in community affairs.



WINNERS IN THE NRC Eight Ball Billiards League (first shift) are from left front, Chester Wasik, L. B. Marino and Bill McMullen. Back row, Bob Miers, Bill Pearson and Earl Jackson. The team of Jackson and Wasik took first place. Marino and Miers were second with Pearson and McMullen third. The league is wide open for more members, according to League President Earl Jackson.

Deadline Set For Savings Plan Changes

Northrop employees participating in the company's Savings Plans have until May 4 to make any changes for the next fiscal quarter. The same date applies to persons wishing to join the plans.

In the program the company contributes \$1 to purchase Northrop stock for each \$2 paid in by the employee for the purchase of common stocks, bonds, or both.

Salaried employees may contribute from 2 to 5 per cent of their weekly base salary (in whole dollars). Up to 8 per cent of a salaried person's salary may be used if he has been a participant in the plans for three years or more.

Hourly employees may contribute \$2, \$4 or \$6 per week.

To join the plans, employees must be at least 21 years old, employed full time and have completed 90 days of employment.

Employees wishing to join the plans or change the amount or allocation of their savings are urged to contact Personnel offices. All Savings Plans changes require the signature of the participant and must be received by Personnel by May 4 to be effective during the first quarter which begins May 1, 1969.



Norair Engineers Invent Fastener Fixture for Moving Material Through 747 Processing and Assembly Lines

A quick connect/disconnect hanger fixture, invented by two Northrop engineers, has been licensed to the Comet Machine Company of Gardena, California.

The fastener fixture is used at Norair to support aircraft exterior skins to the monorail system

which moves the material through the Boeing 747 processing and assembly lines.

The fixture was invented by Les Baxter, Facility engineer, and Tom Frederick, acting supervisor, Production Facility Engineering.

Prior to the development of the



LES BAXTER, left, above, and Tom Frederick of Norair check over the quick connect/disconnect hanger fixture they invented to speed up movement of exterior skins through the Boeing 747 processing and assembly lines. At left the fixture is shown in use at the Torrance facility.

quick connect/disconnect hanger, aircraft skins were fastened to the monorail support by laboriously screwing together nuts and bolts. This required special tools operated from an awkward scaffold position to secure 8 by 24 foot exterior aircraft skins.

The quick connect/disconnect fixture proved to be safer, quicker and cheaper. It reduces the amount of time for the fastening operation by 15 minutes per skin. There are from 84 to 90 skins for each ship set. It eliminates the need for the special tightening tool and reduces the amount of time workmen have to work on the scaffold. The new fastener fixture costs \$17.50 to produce in contrast to \$21.50 for the less

satisfactory model previously used.

The fasteners are attached to the skins after forming at the Northrop K-6 Torrance Skin Facility. These skins are hung from monorails in trucks for transportation to Hawthorne. They are then rolled from the truck directly onto the plant monorail system. Then they are moved, step-by-step, through the various processing, bonding and assembly operations.

Licensing the invention to the Comet Machine Company will make the connect/disconnect fixture available to the entire aerospace industry as well as to other manufacturers who move bulky material along an assembly line.

NORTHROP NEWSMAKERS

John Rushmer, Corporate, recently presented a lecture on "Management Development" to a UCLA Business Administration Extension class in "Organization and Management Theory" taught by **Jack Blum**, Norair. Previous guest speakers in the series include **Dr. W. L. Ellet**, Corporate, and **John Sterling**, Northrop Data Processing.

Bejan Khajeh-Nouri, Ventura, is instructing the course Stochastic Processes In A Continuum (X481.8) at UCLA Wednesday evenings.

Ray Lavi, Ventura, attended the recent AIAA/ASME tenth annual Structures, Structural Dynamics and Materials Conference in New Orleans, Louisiana. Mr. Lavi, an AIAA Fellow, is a member of the AIAA's Air Breathing Propulsion Committee.

W. J. Grinnell, Norair, has authored a paper titled "Packaging Data Standardization" for presentation at the American Ordnance Association meeting April 28-29 in Colorado Springs.

V. H. Carter, Norair, has prepared a paper titled "Value Engineering — Art or Science" for presentation at the April 21-23 Society of American Value Engineers' annual conference in San Diego.

K. C. Wu, Norair, will present a paper titled "Dual Filler-Wire Welding of Aluminum and Titanium Alloys" at the 50th annual meeting and welding show of the American Welding Society April 28-May 2 in Philadelphia.

Richard E. Horner, senior vice president, was a member of a panel that discussed "Contracting With NASA & DOD—The Coming Environment" at the National

Contract Management Association's National Symposium and Educational Conference this month in Los Angeles.

Marvin (Red) Beyrodt, Corporate, is a newly-appointed member of the Carson Parks and Recreation Commission. His daughter, **Chris**, was a member of the Carson High School team which recently won the Los Angeles City High School Girl's basketball tournament sponsored by the Youth Services Department of the L.A. city schools.

Thomas E. McSweeney, Norair, will serve as coordinator of the 1969 Region VI Student Conference to be presented by AIAA May 1-2 at California State Polytechnic College, Pomona.

Harold A. McLoud, husband of **Mary McLoud**, Norair, has received a \$300 award for academic achievement from the Bank of America. He is on educational leave from Norair.

Tickets for Ice Capades Offered At Bargain Rates

The next attraction among Northrop Recreation Club's family-type entertainment at bargain rates comes off at 5 p.m. May 4.

This is a special performance of the internationally-famous Ice Capades show slated for the Los Angeles Sports Arena.

NRC has obtained 1,000 of the best seats available. They normally sell for \$5 each, but are available through NRC sponsorship at only \$3.50 each.

Contact Personnel Activities ticket outlets throughout Northrop facilities for tickets.



HISTORY MAKERS—These five men, among the original 50 who helped establish the company in 1939, met recently to salute Northrop's 30th year. Here they discuss a model of Northrop's first aircraft, the N-3PB. They are from left, Dick Nolan, Tom Quayle, Bob Catlin, Mel Brown and Paul Bonham.

DON'T WAIT TOO LONG FOR DISNEYLAND NORTHROP NIGHT TICKETS, NRC WARNS

Northrop Recreation Clubs are offering a bit of advice this week—if you plan to attend Northrop Night at Disneyland this year, don't wait too long to obtain your tickets.

The reason is simple. In the past two years all tickets have been sold well in advance of the event. Only a limited number of tickets are available and well over half of those have already

been sold. It will be impossible to get additional tickets.

The big day is May 24 from 8:30 p.m. to 1:30 a.m. All Magic Kingdom facilities will be reserved just for Northrop ticket holders who will have unlimited use of all attractions.

The price per ticket is \$3.75. Contact Personnel Activities outlets.



GRAND OPENER of the 1969 Ice Capades show is a "skate-in" featuring the lovelies above. NRC has acquired a block of bargain rate tickets for the 5 p.m. May 4 performance. Contact Personnel Activities outlets.

Employees Rank High In Savings Bonds Purchases

Northrop employees participating in the U.S. Savings Bonds Payroll Savings Plan in 1968 ranked 13th in the nation in overall percentage participation.

Employees can be proud of their national position in the "major corporation" category.

"It is hoped that as the 1969 booster program gets under way in late May more employees will take advantage of the benefits offered by the program," said Marvin Beyrodt, Community Re-

lations, U.S. Savings Bonds Program coordinator.

A number of employees throughout the company will assume key roles in coordinating the program. They are:

John Richardson and Dick Carroll, Norair; Deane Haddon, Northrop Corporate Laboratories; Jack Theibert, Northrop Ventura; Harry Clark, Electronics; Gene Jessick, Electro-Mechanical; and Sandra Tapper, Corporate office.

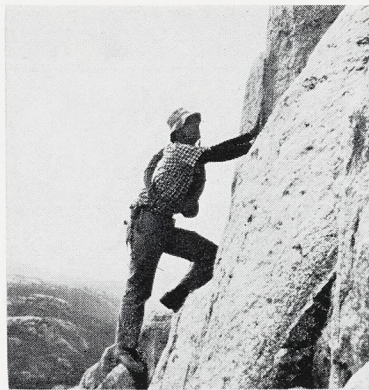
DISNEYLAND RALLYE

Northrop Sports Car Club will stage a short rallye terminating at Disneyland May 24 for NRC "Night at Disneyland." Notify Don Burke, Norair ext. 1655, if you desire to participate.

IS IT NEWS?
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TREACHEROUS—Bob Van Allen pauses before leaping a dangerous crevasse in attempted ascent of 22,205-foot high Huascaran in Peru last summer.



WHICH WAY? — Bob Van Allen, weekend mountaineer and controller of the Northrop Corporate Laboratories, tries to find a route on the sheer rock mountain face. At left, a party with Mr. Van Allen crosses a glacier on Mt. Rainier.

Hiking Hobby Leads to High Adventure

To his co-workers, Bob Van Allen is the crewcut controller of the Northrop Corporate Laboratories in Hawthorne. Many know that Mr. Van Allen enjoys hiking and is a past-president of the Northrop Recreation Club.

But few are aware that the 43-year-old grandfather is also the head (chairman of the executive committee) of the 11,000-member Angeles Chapter of the Sierra Club.

Since the nationwide conservation organization has only 70,000 members, Mr. Van Allen's position takes on added importance.

After graduating from high school, Mr. Van Allen entered the U.S. Army Infantry. Unlike so many other ex-foot soldiers, his interest in hiking continued after he was mustered out. Later he learned mountain climbing, too.

And his family enjoys the outdoor life as much as the father does. He has climbed 257 of the 258 mountain peaks in the "100

Peak Section" of the Sierra Club from the Tehachapis to the Mexican border.

His wife, Joyce, has scaled 180 peaks. Son Jim, 18, has 210 peaks to his credit; Barbara, 13, and Tom, 11, his youngest, have each climbed over 100 peaks. His oldest daughter, Susan, 20, does not climb.

Mr. Van Allen began hiking and climbing seriously in 1962 and in 1963 he joined the Sierra Club. Last year he was elected to the local chapter's top post.

He has climbed many of the major peaks in the Southwestern USA and Baja California. But his biggest effort came in the summer of 1968 when he was part of an expedition of Sierra Club members trying to conquer Huascaran, the highest peak in Peru.

That mountain is 22,205 feet high and the Van Allen group was stopped some 1,500 feet short of their goal by altitude sickness, weather and time. "But

the trip was very rewarding. I enjoyed the country tremendously."

Hiking and mountain climbing aren't limited to strong men, Mr. Van Allen says. "It is definitely a family affair, especially on weekends." And don't be afraid. "A few years ago I wouldn't climb an extension ladder," he laughed.

Both the Sierra Club and the Northrop Mountaineers conduct weekly hiking, camping and climbing trips throughout Southern California from the desert to the Sierra.

"We want to get people out—driving, walking or climbing," Mr. Van Allen said. "Because interest leads to concern. Concern for saving the great outdoors for future generations to enjoy."

Employees interested in joining the Northrop Mountaineers may contact Eldon Burgess, commissioner, at ext. 2001.

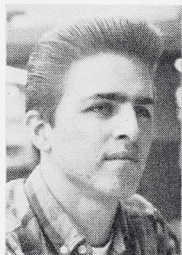


BIG DAY for the NRC Surf Fishing Club was its recent meet at San Clemente. Here, top left, Annette Eisenmann is as proud as Captain Ahab was when he harpooned Moby Dick at the first fish she ever caught in the surf. She shows it to Clo Pawlicki, her grandfather George Nosacka and brother Kevin. Center, top, John Hagerman shows good surfing form, while right above, Cordie Hulsey checks

in at the beach. Left, below, club members stretch out along the beach in the early morning. In foreground are John Pawlicki and Kevin and Mark Messner, nephews of John Hagerman. Right, Al Newton baits hook for wife, Lucille. In center, Frank Vargas displays his catch, first of the day. John Pawlicki, club commissioner, says there is plenty of room on the beach for new members.

WHAT DO YOU THINK?

Which of Northrop's Fringe Benefits Do You Consider The Most Attractive



Mr. Griffin

Brad K. Griffin, dispatcher, Electro-Mechanical:

The Northrop Savings Plan. I believe it is the best investment for your future security. It can't be beat.

Margaret Kogut, Banking and Receivables, Ventura:

Insurance coverage. Because of the additional benefits beginning in August of next year (when dental coverage begins) the insurance program will be the most liberal of any major company that I've heard of.



Miss Kogut



Mr. Foltz

Paul Foltz, departmental assistant, Norair:

I like the Salaried Savings Plan. I know I couldn't afford to have a broker available to consult for investment purposes, so I consider that the stock fund provides me expert consultation in investing my contribution.

Ken Fish, technical data coordinator, Electronics:

I like the yearend holiday. It's great for my use because it gives me an opportunity to travel back east and spend the holidays with relatives.



Mr. Fish



Mrs. Clark

Lucy Clark, clerk, Manufacturing Engineering, Electro-Mechanical:

I like them all, but I think the one I appreciate most is the special Christmas week vacation. I can get my shopping done without hurrying, and I like the opportunity to rest up after Christmas and get ready for New Year's.

M. E. Smith, janitor, Ventura:

Vacations, especially the Christmas break. It lets me rest up and get things off my mind—and allows me to enjoy the holidays more.



Mr. Smith



Mrs. Schowl

Patti Schowl, secretary, Norair:

Our yearend holiday. I can think of no better time to be off work to enjoy the Christmas holiday with my family.

Karen Sloan, secretary, Electronics:

I think my first choice of attractive benefits is the Savings Plan. It is a fantastic way of saving money because you earn more than you put in. I also like the yearend holiday since this gives me more time to spend with my children at the most wonderful time of the year.



Mrs. Sloan

SURF FISHERMEN WILL SEE MOVIE

"The Sea of Cortez," an outstanding movie about fishing in Baja California, will be shown at the May 6 meeting of the NRC Surf Fishing Club, according to Commissioner John Pawlicki. The film shows color scenes of

different modes of fishing as well as spectacular above water and underwater shots.

"Because it shows so many different ways and types of fishing," Mr. Pawlicki said, "the film should be of great interest."



MODEL AND MAKER—Betty Shook models one of the first evening gowns made by her



husband, Bill, as he "clowns around" in her wardrobe closet.

HE LIKES TO SEW

Dressmaking Keeps Bill Shook Busy

Bill Shook hasn't bought his wife a new dress in two years—ever since he began his "sew-sew" hobby.

Since that time he has not only made most of his wife's clothes, but his son's, daughter's and granddaughter's, too. "I even make myself a few things now and then," Mr. Shook said.

To Keep Busy

Being an ex-sewing machine salesman, Mr. Shook decided to take up sewing as a hobby when he and his wife sold their house and moved into an apartment.

"There's no garage or workshop in the apartment building so I began sewing to occupy my leisure time," he said.

His wife, Betty, made fun of him when he first told her about his new hobby. "She changed her tune real quick after I made her an evening gown," Mr. Shook explained with a grin.

His co-workers in the Electronics Division Machine shop like

to "needle" him about his hobby, too. "But that's because their wives are after them to take up sewing as a hobby."

Is it a problem being a "male seamstress"?

"Yes," Mr. Shook says, "but it's also a lot of fun. When I go into a yardage place to buy material the salesgirls just let me stand there, thinking I'm waiting for my wife. And I guess our mailman wonders about my correspondence with the Fashion Fabrics Club, of which I'm probably the only male member."

He estimates that he has made

his wife 40 to 50 different pieces of clothing. He values her wardrobe at approximately \$3,000.

Wedding Gown

Mr. Shook is currently involved in his most daring attempt at dressmaking thus far: a wedding gown for his future daughter-in-law. "I plan on using corded lace over satin," he said.

In addition to sewing, Mr. Shook and his wife are avid camping buffs. "Between the two I believe my wife and I have found the pattern to a successful and happy life."

12-Year-Old Flutist Makes Concert Debut With Mother

Twelve-year-old flutist Bradley Cain made his debut with the La Mirada Symphony Orchestra on March 22. He played the Vivaldi Concerto in C for Two Flutes with his mother, Joan Cain, who is first flutist with the orchestra.

Bradley is the son of Elmer Cain, engineering specialist, Norair Communications and Navigation. Mrs. Cain is a former Northrop employee who worked in Special Weapons for four years.

Bradley began studying music with his mother when he was five and started on the flute when he was seven. Three years ago he became the pupil of Jane Loschen

of Rolling Hills Estates.

Bradley, a student at Rancho Elementary School, has been playing with the McNally Junior High School band for the past year. He also has been a participant in the Southern California School Band and Orchestra Association Solo and Ensemble festival, receiving a superior rating.

Bradley and his mother practiced together for six months before his debut which was at the symphony orchestra's Youth Concert at Biola College.

The mother and son flute duo was repeated in the symphony's concert April 13.



BRADLEY CAIN, 12, and his mother, Mrs. Elmer Cain, practice for their rendition of the Vivaldi Concerto in C for Two Flutes with the La Mirada Symphony Orchestra. It was Bradley's debut with the orchestra.

Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

Pontiac, 1965 GTO, 4-spd., p/s, p/b, 400 h.p. blue printed eng., many extras, \$2,300. 213-377-4528. A

Firebird, 1969 345, full power, air, 600 mi., \$3,600. 213-379-7379. A

Cadillac, 1955 Fleetwood, 4-dr., \$200. 213-397-7177. A

Dodge, 1966 Polara, 4-dr. h/top, air & power, \$1,600. 213-378-7479. A

Station Wagon, 1963 Rambler 770 Classic custom, r/h, auto. trans., \$400. 714-528-9227. A

Chevy II, 1966, auto., 6 cyl., htr., \$1,250. 213-372-8740. A

Station Wagon, 1958 Ford, '62 390 eng. & trans., \$300. 213-675-7381. A

Oldsmobile, 1960, h/top, p/s, p/b, auto., \$285. 714-847-5142. A

Plymouth, 1963 Valiant, 2-dr., r/h, \$599. 213-679-0074. A

Ford, 1962 Galaxie, 2-dr., 6 cyl., 3-spd., a/c, \$450. 213-676-0049. A

Chevrolet, 1966 El Camino, 327 cu. in., 275 h.p., 4-spd., portable camper, \$1,900. 213-757-2955. A

Pickup, 1955 Ford Custom cab, \$325. 213-673-4280. A

International Scout, 1964 Super 80-4x2, removable short cab, hvy. duty o/load springs, trailer hitch, many access., \$1,000. 213-831-3594. A

Ford, 1961, 6-cyl. stick, \$275. 213-943-3516. A

Station Wagon, 1968 Chevrolet Caprice, p/s, p/b, a/c, 327 eng., fact. warranty, \$3,245. 213-676-2597. A

Volkswagen, 1964, wrecked, trans. & rear axle broken, incl. eng. & radio, \$200. 714-539-9964. A

Buick, 1962 Skylark, p/s, p/b, \$650. 714-847-9704. A

Karmann Ghia, 1961, 4-spd., r/h, \$650. 213-346-6625. A

Sports Wagon, 1965 Buick Vista Cruiser, full power, \$1,500. 714-673-0104. A

Corvette, 1964 convt., 2 tops, 300 h.p., auto. trans., \$1,895. 213-675-9587. A

Station Wagon, 1964 Tempest, air cond., auto. trans., \$960. 213-846-5589. A

Chevrolet, 1964 Impala, 2-dr., power, fact. air, \$1,195. 213-676-9858. A

Corvair, 1960 sedan, eng. recently o/hauled, \$150. 213-296-1238. A

Volkswagen, 1967, less than 11,000 mi., AM-FM radio w/rear spkr., \$1,500. 213-534-2419. A

Austin Healey, 1966 3000, MK-III radio wires, Pirellis, o/drive, \$2,250. 213-376-2230. A

Pontiac, 1965 GTO, p/s, p/b, auto. Trans., r/h, a/c, \$1,800. 213-676-0055. A

Rambler, 1960 American, 6-cyl., 2-dr., r/h, auto., \$150. 213-587-1808. A

Truck, 1914 Model T Ford, C cab, w/1958 VW eng. & trans., misc. parts, \$650. 213-532-8850. A

De Soto, 1959 4-dr., Custom, full power, r/h, \$225. 213-677-7914. A

Cadillac, 1967 Coupe De Ville, fully equipped, \$3,900. 213-656-3660. A

Station Wagon, 1966 Ford Country Squire, 390 cu. in., 10-pass., fact. air, p/s, p/b, r/h, lug. rack, \$2,150. 213-881-5173. A

Station Wagon, 1962 Rambler, \$150. 213-675-3866. A

Chevrolet, 1964 Super Sport, AM-FM radio, p/s, p/b, a/c, 327 eng., \$1,300. 213-296-0202. A

Rambler, 1962, 4-dr., CL 400, 6-cyl., r/h, \$395. 213-679-4305. A

Ford, 1966 7 litre, 428, 4-spd., air, p/s, d/brakes, \$1,500. 213-379-9676. A

Mustang, 1967, auto., p/s, r/h, air, \$1,850. 213-583-5254. A

Chevrolet, 1960 convt., 6-cyl., auto. trans., p/s, r/h, \$250. 213-377-6458. A

Lodge Wagon, 1968 Wheel camper, self-contained, sleeps 6, used 3 times, small equity & take over \$62 mo. pymts. or \$1,850. 213-679-2789. A

MGA, 1962 1600 MK II, wire wheels, \$675. 714-838-7523. A

Volkswagen, 1965, \$975. 213-323-9003. A

Corvette, 1963 Sting Ray convt., 2-tops, 327 cu. in., 300 h.p., 4-spd., AM-FM radio, full power, \$1,975. 213-644-8011. A

Studebaker, 1961 convt., V-8 Lark, r/h, a/c, \$200. 213-532-4046. A

Cougar, 1967, a/c, p/s, p/b, \$2,875. 213-678-8467. A

Plymouth, 1961, 6-cyl., \$150. 213-671-1379. A

Dune Buggy, 1967 VW eng., top & curtains, \$2,000. 213-377-5059. A

Mustang, 1966 2+2, 4-spd., big eng., extras, \$1,695. 213-377-7670. A

Karmann Ghia, radio, \$1,595. 805-483-2724. A

Automobiles For Sale

Ford, 1964 Galaxie 500, 4-dr., V-8, p/s, p/b, a/c, r/h, \$975. 213-675-2331. A

MGTF-1500, 1955, wire whls., radio, completely o/hauled eng., \$1,250. 213-832-5861. A

Chevrolet, 1961 Impala, 348 eng. w/tri-power, 4-spd., w/Hurst linkage, p/s, p/b, \$495. 714-879-7921. A

Jaguar, 1959 XK 150, spoke whls., AM-FM radio, completely rebilt., \$1,650. 213-377-1715. A

Ford, 1968 XL-GT, a/c, p/s, d/brakes, \$2,700. 213-671-6692. A

Falcon, 1963 Futura, 4-dr., 6-cyl., r/h, \$400. 213-675-1884. A

Plymouth, 1967 Belvedere II, h/top, auto., 383 eng., \$1,800. Box 701. A

Pickup, 1965 Ford F-100, 6-cyl., stick, \$995. 213-378-9811. A

Chevrolet, 1964 Bel Air, auto. trans., p/s, \$775. 213-644-6017. A

Mustang, 1967 2+2 fastback, fact. air, stereo, auto., p/disc brakes, p/s, console, \$2,295. 213-377-3532. A

Pickup, 1968 Chev. V-8, stick, r/h, 6 1/2' bed, \$1,850. 805-526-7443. A

Chevrolet, 1964 Impala 2-dr. h/top cpe., radio, fact. air, power, \$1,000. 213-324-5709. A

Household Items For Sale

Pole Lamp, burnished brass, \$40. 213-882-0761. B

Bed, twin, box spring, mattress & frame, \$10. 213-451-5330. B

End Table, blonde step-type & matching coffee table, \$20. 213-375-4574. B

Dresser, walnut venier, knee-hole-type, 5 drwrs., \$10. 213-679-1631. B

Hide-A-Bed, Simmons, \$55. 213-751-8420. B

Dining Room Set, near antique, 9-pc., solid walnut, \$250. 213-378-3219. B

Freezer, 21 cu. ft. Hibbard, upright, \$100. 213-340-7752. B

Dryer, gas, \$35. 213-372-2602. B

Freezer, 20 cu. ft. chest type, sliding top, \$150. 213-679-0835. B

Stove, 30" Magic Chef, gas, white, \$25. 213-326-5728. B

Dryer, lge. Westinghouse, \$50. 213-861-1529. B

Refrigerator, apt. size Admiral, \$20. 213-676-1429. B

Sewing Machine, portable, \$10. 213-672-6881. B

Dining Room Set, Early American, table & 6 chairs, \$30. 714-531-4958. B

Tables, 3 matching walnut Danish, \$15 ea. 213-320-4747. B

Stove, G.E. 2-oven push button, used 2 mos., \$175. 805-498-8202. B

Dinette Set, modern white & gold, 2 ext. leaves, chairs, china hutch w/sliding glass doors, \$225. 714-968-5343. B

Recliner Chairs, 2, tan & beige, \$10 ea. 213-370-6896. B

Sofa, custom, 9' quilted velvet, matching love seat & 2 Mediterranean tables, \$400. many other items, 213-675-3995. B

Corner Table, 30"x30", antique white, \$35. 213-545-5924. B

Coffee Table, matching end table, mahogany w/formica tops, \$750 ea. 213-675-3087. B

Stove, elec., Frigidaire, 2 ovens, \$30. 213-928-2257. B

Miscellaneous For Sale

Rifle, custom 243 Mauser w/Redfield 3x9 variable scope, \$185. 213-676-4251. C

Motorcycle, 1966 Honda, 160 Scrambler, recently rbit. eng., \$245. 213-925-7746. C

House, 2-bdrm., 1 bath, fenced yd., corner R-2 lot, No. Inglewood, \$19,500. 213-645-4163. C

Mini-Bike, Taco 44, 3 h.p. Briggs & Stratton, \$95. 213-645-4697. C

Car Bed, baby's, deluxe, \$7.50, other baby items. 213-674-5424. C

Home, 3-bdrm., lge. kitchen, cpts., dps., close to Northrop, \$21,950. 213-675-5196. C

Power Generator, Briggs & Stratton, 3.5 kw, batt. start, \$250. 213-832-0025. C

Camper Shell, McDonald, 8 ft. long, \$175. 213-234-7993. C

Surfboard, 6'4" Bing custom design, \$70. 213-374-9944. C

Engine for 1958 VW, complete, \$95. 213-833-4191. C

Camera, Yashica 12, 2 1/4 sq. twin lens reflex, 3 closeup lens, case, \$75. 213-835-3869. C

Lot, Bermuda Dunes/Palm Desert area, 7,500 sq. ft., improved, near golf & airport, terms, \$500 dn., \$58 mo., \$4,500. 213-241-0326. C

Mini-Bike, Westbend 6.10 eng., custom frame, \$110. 213-347-0193. C

Exercycle, motor driven gearbox, newly re-finished, \$185. 213-545-1059. C

Gadget Bag, leather, 9x10x4", \$3.50. 213-675-0788 days. C

Shotgun, 12 ga. Browning 2-shot auto., vent-tilated rib, 29" full choke, \$150. 213-838-0532. C

Shotgun, 12 ga., Winchester Model 101 o/u 30" trap grade, \$225. 213-644-5626. C

Exhaust System, manifolds & muffler for 1600 cc Porsche eng., \$12. 213-396-6739. C

Bicycle, 10-spd. racer, low mountain gear, \$65. 213-541-2083. C

Acreage, 2 1/2 acres, near Rosamond, \$39 dn., \$39 mo., no int., \$3,900. 213-378-1026. C

Miscellaneous For Sale

Pool Table, Fisher Deluxe, slate bed, 4 cues & 2 sets of balls, 2 tops, \$200. 213-676-7458. C

Surfboard, 10', \$45. 213-674-2239. C

House, 2-bdrm., cpts., dps., lge. fenced backyard, FHA loan, 2 miles from Norair, \$20,500. 213-327-5756. C

Mini-Bike, 3 h.p. w/jack shaft, \$75. 213-676-5928. C

Projector, Kalart Victor Moviematic, 16 mm sound motion picture repeater w/bltin screen, commercial type, \$400. 213-532-4677. C

Lot, corner, Salton Sea City, 100' x 125', \$1,000. 213-796-3464. C

Organ, Lowrey Holliday, electronic, \$500. 213-644-1359. C

Hairsetter, new Clairol 20, \$10. 213-644-8115. C

Punch Press, 5-ton Benchmaster, w/flywheel guard & motor, \$275. 213-679-3288. C

Engine, for 1962 Renault, w/4 tires & wheels, trans., other access., \$100. 213-679-5111. C

Home, 5-bdrm., refrig., a/c, 3-car gar., undgd. util., 600 sq. ft. brick & redwd. patio, landscaped, fences, dps., 7 mi. west of S.F. Valley, \$36,500. 213-889-8075. C

Kitchen Door, 32" swinging-type, \$7.50. 213-670-8453. C

Cemetery Lots, 3 dble. interment, Park View sect., Inglewood Park, incl. perpetual endowment care, \$1,250. 213-370-3791. C

Washbowl & toilet combination, incl. chrom-ium h/ware, \$20. 213-679-6982. C

Axle Beam assembly, for VW, front, \$60. 213-756-9697. C

Camping Equipment, tent, stove, other items, \$50. 213-672-0548. C

Transceiver Ham, National NCX-3 w/NCX-AC power supply & crystal calibrator, \$175. 213-325-0309. C

Carpet, 12' x 15', harvest gold, nylon, w/ matching fiber pad, \$85. 213-379-4476. C

Slot Cars, 2, controls & related equipment, \$10. 213-372-8685. C

Tent Trailer, Apache, used 3 times, sleep 4 to 6, \$300 & take over \$20.98 mo. pymt. or \$600. 213-671-6526. C

Bicycle, girl's 24" Higgins, \$20. 213-675-3431. C

Formal, beige crepe, angle-length, size 8, worn twice, \$15. 213-372-5387. C

Rancho, 10 1/2 acres, adjoins U.S. land, 3 miles to Perris Lake, terms, \$11,900. 213-377-1074. C

Golf Clubs, bag, 7 irons, \$25. 213-323-8213. C

Tape Recorder, never used, Revox model 77A, Swiss mfgd., \$500. 213-295-8958. C

Motorcycle, 1965 Honda 305, \$300. 213-329-5310. C

Dog, mini Yorkshire terrier, 1 yr. old, male, British export pedigree, \$175. 213-329-8369. C

Melodeon, antique cherry wood, \$175. 213-346-3751. C

Motorcycle, 1966 Honda Super Hawk, 305 cc, \$425. 213-948-1820. C

Precision Tools, machinist's & Kennedy tool box, \$200. 213-675-1094. C

Coils, 4, for Model T Ford, \$25. 213-758-7041. C

Mobile Home, 12' by 50', 2-bdrm. w/2 rooms added on, bltins, 5'x7' shed, in adult park, \$4,500. 213-675-9048, 213-324-2021. C

Lawnmower, power, \$20. Box 702. C

Air Conditioner, window model, elec., 9000 btu Chrysler air temp, \$100. 213-376-2315. C

Home, Garden Grove, 3-bdrm., family rm., liv. rm., 2 baths, custom covered patio, landscaped lot, \$28,500. 714-539-6128. C

Record Player, stereo, portable Silverstone, \$50. 213-373-3128. C

Bicycle, 26" man's 3-spd. racer, \$50. Box 703. C

Poodles, male & female, blue-grey, 10 wks. old, AKC reg., \$65-\$100. 213-375-5888. C

Miscellaneous For Sale

Pups, Labrador retriever, black, AKC, females \$65; males \$75. 213-675-3557. C

Wheel, complete w/usable spare tire, fits 1963 Chev., \$5. Box 704. C

Sailboat, 9 1/2' dacron sail, car top carrier, sand dolly, \$150. 213-321-1655. C

TV, color 19", w/stand, \$65. 213-673-4698. C

Wig, dark brown, short human hair, \$25. Box 705. C

TV, 23" Zenith, table model, b&w, \$100. 213-422-4520. C

Boat, 15' Glen L. Rebel, 105 h.p. Chrysler outbd, lge. wheel trailer, \$1,500. 213-323-7544. C

Pups, Labrador retriever, AKC, all shots, 3 mos., black, 65-\$100. 213-377-6658. C

Camera, Retina III C Kodak, std. 50 mm f.2, 80 mm telephoto & 35 mm wide angle lenses, \$180. 213-675-4121. C

Motorcycle, 1968 CB 160 Honda, \$300. 213-675-2813. C

Wedding & Engagement Rings, \$100. 213-379-4957. C

Camper-Trailer, tent-top, sleeps 5, 15" whls., \$325. 714-528-8582. C

Boat, 26' Chris Craft sedan, dble. planked white oak hull, flush deck, sleeps 4, Hercules 6-cyl., \$950. 714-968-5183. C

Dutch Door, 2-pc., 32" wide, latching & access. hardware, \$18. 213-293-5993. C

Door, front & back, w/matching locks, many other items, \$75. 213-596-8860. C

House, 6 yrs. old, 4-bdrm., tri-level, 3 baths, lge. rumpus rm. w/wet bar, gas air cond., will carry 2nd, 15 min. from Northrop P.V., lease for \$350 mo. or \$42,000. 213-831-0480. C

Lawnmower, hand-type, 16", \$10. 714-968-2780. C

Boat, 14' Folbot runabout, never used, \$200. 213-679-6937. C

Speaker, 12" Electrovoice SP-12, recently recond., \$30. 213-375-4345. C

Trailer, 16' Santa Fe, customized, cabana, many extras, \$745. 213-375-7265. C

Camping Trailer, Nimrod tent-type, 4x7 closed, 7x14 set up, \$325. 714-530-2271. C

Lot, 25'x80' level, on hilltop, all utilities in, close to Arrowbear Lake & ski slopes, \$2,500. 714-892-9318. C

Transmission for 1936 Cadillac, \$10. 714-838-7161. C

Wanted to Buy

Revolver, single action Army Colt, or Great Western, 5 1/2 or 7 1/2" bbl., will pay \$50. 213-532-7634. D

Beds, twin, in excellent condition. 213-679-7840. D

Hardtop for 1955-57 Ford T-Bird. 213-433-3385. D

Construction Materials, wood, alum. frame windows, doors. 213-644-2154. D

Sabot, fiberglass hull, Naples class, racing rig or good hull for Mod to racing. 213-430-1531. D

Buffet & or hutch, Ethan Allen maple, china cabinet. 213-398-2488. D

Outboard Motor, Mark 25 Mercury. 213-830-7701. D

For Trade

Station Wagon, 1962 Pontiac, trade for Chevrolet pickup. 213-676-0051. E

Free (To Be Given Away)

Garden Swing, steel, about 6' wide, white, needs seat cushion, you pick up. 213-378-3529. F

Kittens, born approx. April 8. 213-379-3555. F

Pup, Labrador retriever mix, female, 7 wks. old. 213-882-9433. F

Rentals Offered

Apt, 2-bdrm. & den, cpts., dps., bltins, pool, adults, no pets, \$125 & up. 213-326-9572. G

Cabin, Big Bear City, near airport, sleeps 8, \$15 day. 213-334-1084. G

Rides and Riders

Rides Wanted

4:42 p.m. — 1:12 a.m.

Torrance Blvd. & Prospect Ave., Redondo Beach. G. S. Gingerich, Norair ext. 2326, 213-374-8894.

3:42 p.m. — 12:12 a.m.

Van Ness & 103rd, Inglewood. Pat Callaway, Norair ext. 2200, 213-672-6881.

8 a.m. — 4:45 p.m.

Sepulveda & Imperial, El Segundo. Beverly Brumley, Norair ext. 1018, 213-379-9676.

Rentals Offered

Apt, 2-bdrm., cpts., dps., bltins, garb. disp., all elec., closed gar., \$135 unfurn.; \$155 furn. 213-375-9397, 213-375-2091. G

Bachelor Apt, single man only, utilities pd., close to Northrop, \$70 mo. 213-372-5985. G

Home, 2-bdrm., lge. living room, 10-month or year lease, no children, \$250. 213-833-8286. G

Apt, Redondo, cpts., dps., bltins w/refrig., 3-bdrm., 2 baths, avail. May 1, \$192. 213-372-8835. G

Camp Trailer, sleeps 4, \$35 wk. 213-347-6133. G

Summer Rental on beach at Oxnard, 2-bdrm., 2 baths, all elec., \$135 wk.; \$125 2 wks. 805-483-6922. G

Cabins, Lake Gregory & Crestline, sleeps 6, make reservations for June-Sept., \$25 w/ends; \$60 wk. 213-391-2040. G

Cottage, Ocean Beach, San Diego, near Mission Bay, make reservations now, \$70 wk. 714-826-2007. G

Rentals Wanted

House, 2-bdrm., unfurn., w/garage & yard in N. Redondo, N. Torrance, or S. Hawthorne, \$160 mo. max. 213-374-8358. H

Child Care

Child Care offered, pvt. Westchester home w/large fenced yd. 213-670-7940. I

Personals

Our sincere appreciation to everyone at Northrop for the flowers & contributions to the Heart Fund for my husband & father Richard L. Fields. NORMA & BRITT FIELDS. L

Please accept our sincere thanks for the thoughtfulness & well wishes from our many friends at Northrop. HUNTER & BARBARA WITHERS. L

I want to thank all my wonderful friends at Norair for the cards, flowers & phone calls during my stay in the hospital & while I have been at home. BETTIE RUPP. L

I would like to thank all my friends at Northrop for the lovely flowers & many cards I received following my recent accident. VERLIN SEAMAN. L

Thanks to all Electro-Mechanical employees who helped with the party & gifts for me. FRANK CLARK. L

Lady wanted to live in to care for elderly lady, pvt. room, everything furnished. 213-675-1921. L

I wish to thank all my friends at the Electro-Mechanical Division, Page Court, for the kind expressions of sympathy on the passing of my mother. MRS. SAL DEL GROSSO. L

For Sale or Trade

Gun, 3 rifles & pistol plus ammo. \$100 or trade for M-1 carbine. 213-962-2867. M

Cabin Cruiser, 23' Trojan, Chev. V-8, sleeps 4, fiberglass bottom, \$3,500 or trade for aircraft or auto of equal value. 213-675-8840 days. M

Life Raft, CO-2 3-4 man, alum. oars, \$50 or trade for 1 1/2 h.p. Seagull outboard. 714-539-2098. M

Boat, 17' inboard, fully equipped, trailer, \$950 or trade for dune buggy or Volkswagen of comparable price. 213-679-2642. M

Dodge, 1966 Monaco 500, full power, a/c, \$1,895 or trade for 9-passenger van. 213-376-9875. M

Signal Shifter, Meissner model EX, VFO, \$25 or trade for erector set/elec. train. 213-597-5232. M



PICKED FOR MOON FLIGHT—Astronaut Richard F. Gordon Jr., shown meeting with Northrop Ventura Parolab employees last year, has been chosen for the Apollo 12 moon flight in the fall. He will be in the command module when two other astronauts descend for the second moon exploration. Apollo 11 will place the first man on the moon this summer.

Austin, Jacques Reveal Plans for Retirement

Two veteran employees at the Northrop Electro-Mechanical Division will retire on May 1. They are C. C. "Don" Austin and Robert S. Jacques.

Mr. Austin, Manufacturing Engineering coordinator, closes 16 years with Northrop and will devote his retirement to working with classic cars.

He has had a number, ranging from a 1933 Chrysler through various models of Buick, Lincoln and the Cadillac Eldorado. Parts for many of these are no longer available. He scours wrecking yards, antique car catalogues and even makes parts when his searches fail.



Mr. Austin



Mr. Jacques

Mr. Austin began with Northrop in 1953 at Ontario where the company was flight testing the F-89 Scorpion. The next year he transferred to Anaheim.

Mr. Jacques, Applications Engineer, Ordnance, said he was retiring "from the best job, best company and best people I have ever worked with."

Mr. Jacques came to Northrop in 1962 and has averaged 150,000 miles of official travel for the company each year since. This has brought his over-all air travel record to more than two-and-a-half million miles.

"After traveling so fast and so far, I'm now going forward to a slower way of travel," he said. "I intend to take a leisurely trip down the Trans-Canadian Highway from Vancouver across Canada to Nova Scotia which was my mother's original home."

Two Give Talks At High School 'Career Days'

Don Loomer, chief, Polaris/Poseidon Project group at Anaheim, and Jim McCarthy, design engineer, made presentations at two high school career days sponsored by the Tustin Area Women's Club.

One was at Foothill High School, Santa Ana, April 16. The other was at Tustin High, Tustin, on April 23.

Mr. Loomer spoke on Careers in Science as it relates to a major aerospace company like Northrop. He discussed positions ranging from basic research to senior scientists, covering the necessary aptitude, educational requirements, opportunities and rewards.

Mr. McCarthy made a presentation on the application of science to the Navy Sealab II program and general scientific application to government programs. Mr. McCarthy has been associated with Sealab since its inception.

In addition to the Northrop presentations, executives from other aerospace companies and business firms in Southern California made similar presentations in support of this worthwhile project.

Huntsville Has First Retiree

The Huntsville, Alabama, facility of Northrop Electro-Mechanical Division recently had its first employee retirement. Fred G. Hertel completed 26 years with Northrop.

Mr. Hertel was honored with a dinner party and presented with lapidary equipment and a box of Alabama rocks to aid him in pursuing his "rockhound" hobby.

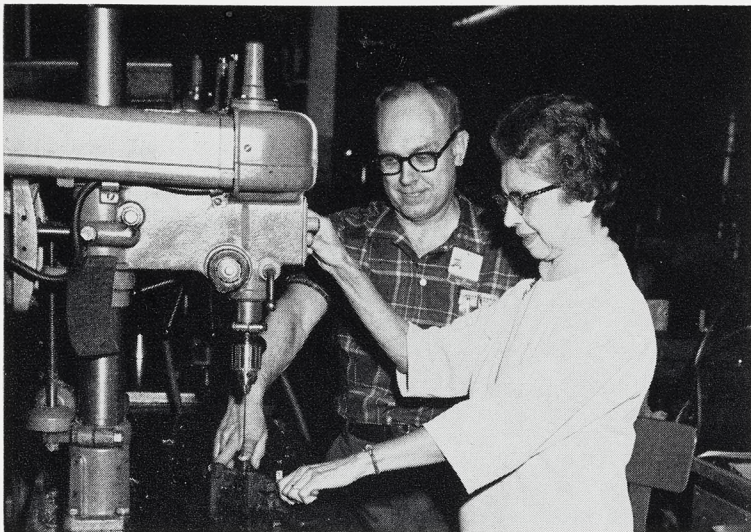
Fred started with Northrop in October 1942. He worked in accounting and administrative assignments in California, Florida, and South Dakota before transferring to Huntsville.

SAVINGS

(Continued from page 1)

standby heaters when not needed during warm weather. Bills for utility services were studied to see if the company was getting the best rates and changes were made to our advantage.

Also, a series of bulletins was issued requesting that lights and motors be shut off when not needed, and that attention be given to eliminating waste of compressed air and water.



SHE HASN'T LOST THE TOUCH—Dora Landreth Azvedo shows former co-worker C. F. Guzinski that she can still run a drill press at the Electro-Mechanical Division machine shop. Mrs. Azvedo was one of the original 16 women hired for this work in 1953. She retired three years ago. Visiting her old work station, she insisted that nothing had changed and she could still take her place on the line if necessary. "It was a wonderful job, I loved it," she said. She also worked in electrical assembly.



VERN RAND displays part of his antique bullet collection, the oldest of which is a 1850

Henry. He began his collection with .22 caliber bullets, then branched out into antique shells.

His Bullet Collection Covers Over 110 Years of Gun History

Vern Rand collects bullets and his collection extends over a period of nearly 110 years and comes from around the world.

The oldest item in his collection is a Henry bullet made in 1850. This was the start of the self-contained shell, using a tin ball propelled by a primer only.

Other unusual shells in the collection are a .56/56 Civil War Spencer, the first breech-loading metallic cartridge used by the Army, and a 9mm pin-fire shell for a pistol. The pin-fire had the firing pin built into the side of the cartridge instead of being inside the gun.

He also has a fairly complete collection of rimfires .22 as well as military rifle shells. The latter includes the Japanese 6.5, the Russian 7.65 and the English .303, all from World War II. Novelties extend from the first metallic breech-loading cartridge built for the Springfield in 1872 to a blank like the ones fired on the Disneyland Jungle Tour today. He also has a .450 Nitro Express for the elephant gun and others ranging down to a 17 caliber shell with a load the size of a BB.

Mr. Rand got interested in shell collecting after deciding his son should learn how to handle a gun.

He sent the boy to rifle training class and became more enthusiastic than his son. He first began collecting .22 caliber bullets and then branched out into antique shells.

Almost all his bullet collection is still "live." "Most are so old it is doubtful they would fire," he said. "However, I can't be sure. Recently, I fired a 7mm shell that was 50 years old. It worked perfectly."

Sergeant Aho Wins Army's Plaudits

Sergeant John Aho, husband of Gretchen Aho, an electronics assembler with the Electro-Mechanical Division's Polaris Program, has received the Army Commendation Medal for meritorious service with the service in Korea.

Sergeant Aho is a member of the Hq. Company, 4th U.S. Army Missile Command in Korea. Mrs. Aho worked for Northrop from 1960 through 1963 and returned to work at Anaheim in 1968 when her husband went overseas.

Sergeant Aho is due for early rotation and will be stationed at Fort Benning, Georgia.

MANAGERS Tell Plans

(Continued from page 1)

"I was impressed at what you have done since I have been away," Mr. Quayle said. "Such accomplishments and achievements don't just happen. They are caused by willingness, competence, cooperation and meeting performance standards."

Remarking that in a competitive society business must be geared for ups and downs, Mr. Quayle said that plans on a long term look to doubling of company work in the next five years. He indicated that this growth would require substantial corporate investments in facilities, OTA and people to lay a base for future expansion with its needs for personnel upgrading and plant expansion.

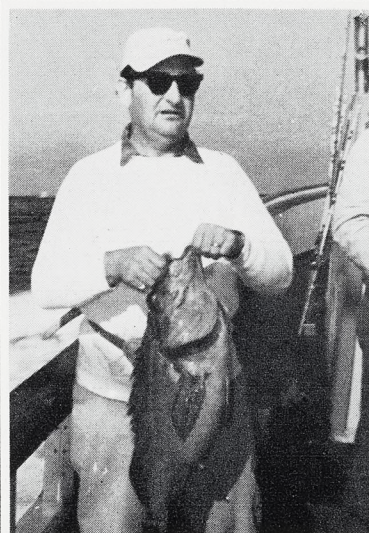
Mr. Quayle said that uncertainty in government funding at this point made it difficult to predict the exact level of department activity for the coming fiscal year. "However," he added, "we are hopeful that we will maintain about the same level as last year—which, as you know, was very good."

In closing, Mr. Quayle re-

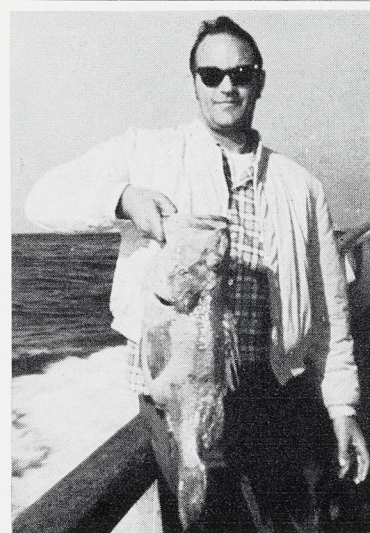
viewed the department's major activities, including automatic test systems in which Northrop is a world leader, ordnance, fabricated products which include the unique integrated stringer facility, and Ocean Systems which, in a different way, can be compared to exploration in space.

Coffee and doughnuts were served prior to each talk.

The talks, arranged so they could be heard by all groups and shifts, are part of a policy to keep personnel informed of Northrop activity as it affects them and their jobs.



TOM BUCKLEY and Charlie Boles show their red rock cod catches on a recent NRC Deep Sea Fishing trip. Mr. Buckley's catch weighed in at 10½ pounds while Boles' scaled 9½ pounds. The NRC Deep Sea Fishing Club is seeking new members.



LADIES GOLF

Entries for the Ladies Twilight Golf league will close on May 1, according to Molla Clark, commissioner.

NORTHROP NEWS

ELECTRO-MECHANICAL DIVISION EDITION

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Automation Systems in Realignment

Organizational changes in the Automation Systems section were recently announced by Dan T. Chung, director of the section.

The former Polaris Project group was redesignated Automation Systems Projects group with D. C. Loomer continuing as chief. The following organizations will report to Mr. Loomer: TEAMS Project group, P. J. Leibert, general supervisor; Mechanical Design, redesignated Product Design, C. J. Rusling, Jr., supervisor; Electrical Design, redesignated Polaris Project, C. L. Almich, project engineer; and C-3 Electrical Design, redesignated Poseidon Project, A. D. Nelson, project engineer.

Other organizational changes include redesignating Test and Programming group to Test and Integration group, N. S. Bishop, chief; and the Tape Center becomes Test Programming, E. L. (See CHANGES, page 6)

Technical Papers Published by Two From Division

Two members of the Northrop Electro-Mechanical Division's Systems Analysis section at Palos Verdes recently published technical papers.

James R. Hamer, senior engineer, published "Effects of Low Level, Low Frequency Electric Fields on Human Reaction Time," in Communications in Behavioral Biology, Part A., Vol. 2, No. 5, Academic Press, 1968. This paper is based on work Mr. Hamer performed under contract to Northrop from the Brain Research Institute at UCLA.

Dr. George J. Friedman, director, Systems Analysis section, published "Constraint Theory," in IEEE Transactions on Systems Science and Cybernetics, Vol. SSC-5, Nos. 1, 2 and 3, 1969.

MOTOR POOL

Sedans Available for Official Business

Seven 1968 Chevrolet Bel Air sedans are available in the Electro-Mechanical Division motor pool for use by personnel on official travel, according to Robert G. Bredeweg, general supervisor,



ART BOWSER makes a patient patient for members of the Emergency Crew taking the American Red Cross First Aid course at the Electro-Mechanical Division. From left are Sir Schuler, Sam Clayton, Wally Polk, "Hawk" Hawkins, Al Arroues and Richard Hopkins. The standard ARC 10-hour course is offered during working hours to all members of the Emergency crew and to front line supervisors. Supervisors attending and now shown are Dave McKinney, H. M. Woodsmall, J. J. Blonk, Frank Asnon, A. R. McElravey and J. J. Shaffer. Al Van Der Most, Safety administrator and class instructor, said "the training is considered an important phase of our safety program and is intended to provide key personnel with the necessary know-how for the prevention and immediate care of injuries both on and off-the-job."

AF Selects Northrop for Leading Composites Role

Northrop Corporation has been chosen by the U. S. Air Force to develop and expand the use of a new structural material that is 40 per cent lighter than aluminum, yet twice as strong as steel.

R. D. Hayes has been named Northrop's project chief for the program at Norair Division.

Called graphite composite, the material is made of charred rayon fibers cemented together with epoxy resin. Northrop last year became the first company to design and test fly a structural aircraft part made of graphite composite.

This is the major graphite aircraft structure development program of Air Force Materials Laboratory at Wright-Patterson AFB, Ohio, covering the next three-year period and will cost \$3.4 million.

Major subcontractors associated with Northrop in the graphite development program include Bell Aerosystems Company, Buffalo, New York; Goodyear Aerospace Corporation, Akron, Ohio; Hercules, Inc., Cumberland, Maryland; Whittaker Research and Development, San Diego; and Fibrerite Company of Winona, Minnesota.

The contract calls for design and development of five structural graphite composite components and qualifying them as flight worthy for the requirements of Northrop's F-5 supersonic fighter.

The structures to be developed are a main landing gear strut door, a speed brake, a wing leading edge flap, a horizontal stabilizer, and a vertical stabilizer. The vertical stabilizer, or tail, will be the last and most complicated.

Northrop Studies Effect Of Automated Test System

Northrop Electro-Mechanical Division's Automation Systems section has been participating in the contract definition phase of the Navy's DD destroyer under subcontract to Litton Industries. The DD is a new generation destroyer that will replace the World War II vintage ships now approaching obsolescence.

Mission

The DD's mission elements include support of attack carrier and amphibious forces, shore bombardment during amphibious assault or land warfare, and both offensive and defensive operations against possible surface, submarine or air threat.

Automation Systems' participation involved studying the extent that an Automated Test System (ATS) would enhance the destroyer's ability to meet its availability goals by increasing the operating time and decreasing the maintenance time of selected electronic equipment.

A further consideration was to study the effect of an ATS on the ship's life cycle cost. This latter effort involved an extensive evaluation of manual maintenance cost against costs and savings incurred by using an ATS over a 20-year lifespan of the ship.

The Electro-Mechanical Division Automation Systems maintenance, management and systems engineering experience in the Polaris-Poseidon and TEAMS programs provided the basic background for participation as a team member on this major program with Litton.

At Litton

During the early phases of the program, the Electro-Mechanical Division had eight engineers under the direction of L. J. Veerkamp, project engineer, at the Litton Advance Marine Technology Division facility, Culver City. T. S. Barry was assigned as program manager, D. C. Loomer as chief project engineer, J. A. Alfieri as the senior systems engineering supervisor, and W. C. Patterson as the applications engineer.

'Listening' Course Now Being Taught

A course to help employees learn what people are really saying to them is currently under way at the Electro-Mechanical Division.

The course, called "The Art of Listening," is taught by Richard Greene, Training administrator. It began May 6 and will continue through sessions on May 13 and 20.

Mr. Greene said that tapes, films, role playing and workshop methods are being used to show participants how people listen.



READY WITH THE KEYS is Dispatcher Gary Latham. Use of company cars can often be more advantageous than reimbursed travel by private vehicle.

CHRISTOPHER TO REVEAL SECRETS

The man who designed hair styles for such personalities as Zsa Zsa Gabor, Shelley Winters, Joanne Woodward, Polly Bergen and the cast of the movie "Irma La Douce" will explain some of his secrets to members of the Northrop Electro-Mechanical Division Womens' Club during a special program set for Monday, May 12, at the NRC Clubhouse, 1834 West Valencia, Fullerton.

Christopher, the hair stylist, in

addition to his work with screen stars, has been associated with Saks Fifth Avenue, his own Christopher Salon, and is a consultant and lecturer at the Ed Harrell Studios of Charm and Modeling.

Ann Dean, president of the NRC Womens' Club, said only a limited number can be accommodated at the special program on hair styling and beauty and urges those interested in coming to make reservations as soon as possible. Call her at ext. 306.

"Reservations should be made 24 hours in advance," Mr. Bredeweg said. "This is to insure availability, however, we will provide a vehicle on last minute notice if one is available. All you need to make a reservation is a vehicle request form and a valid state driver's license."

The motor pool is operated by the Warehousing Operations branch's Traffic and Transportation unit. Gary Latham, ext. 263, is the dispatcher. Call him or Fred Marek, same extension, for reservations or information.

Electro-Mechanical Hosts Board of Directors Meeting

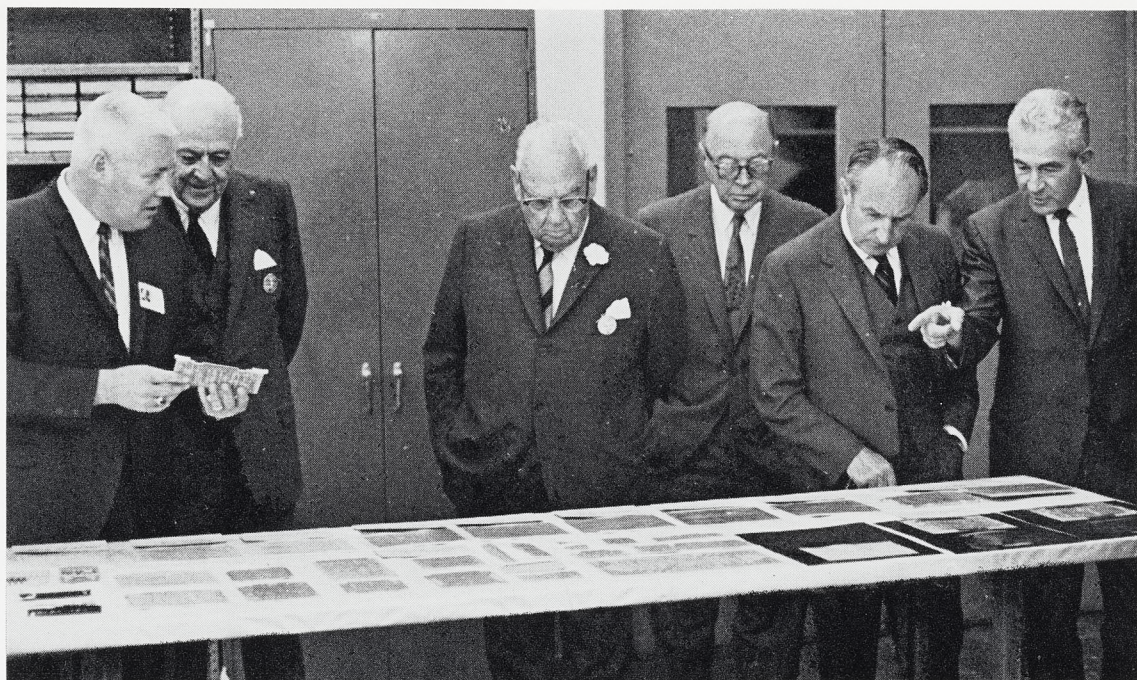
The Northrop Electro-Mechanical Division was host to the April 23 meeting of the Northrop board of directors.

The directors attending the Anaheim meeting were Thomas V. Jones, chairman of the board and Northrop president; James Allen, vice president and assistant to the president; Richard W. Millar, vice chairman of the board of directors, Glore Forgan, William R. Staats, Inc.; Earle M. Jorgensen, chairman of the board of directors, Earle M. Jorgensen Company; T. M. McDaniel, Jr., president, Southern California Edison Company; Robert R. Miller, consultant and former Northrop senior vice president; John O'Melveny, senior partner, O'Melveny and Myers; Clair L. Peck, Jr., general manager, C. L. Peck Contractor; A. E. Ponting, director and chairman of the executive committee, Blyth and Company, Inc.; and James D. Willson, Northrop vice president, Finance.

Also attending were George Gore, vice president, general counsel and secretary, and David H. Olson, assistant secretary.

At the conclusion of the business meeting, Frank Lynch, vice president and general manager, Electro-Mechanical Division, explained the operation and future plans of the division. Following Mr. Lynch's presentation, the directors were taken on a tour of plant facilities and operations of the Anaheim department.

Guiding the tour and explaining department operations were Ray Schultz, Operations manager; Frank McNabb, director of Quality Assurance; Lauren Persons, chief, Manufacturing Engineering; and Charles Hargrove, deputy director, Manufacturing Control; Don McInnis, director, Ordnance; C. T. Tucker, chief, Ordnance Production; Frank Merrel, supervisor, Ordnance Industrial Engineering; Dan T. Chung, director, Automation Systems.



INSPECTING PRINTED CIRCUIT BOARDS during a tour of Electro-Mechanical facilities are, second to fourth from left, Board Directors Richard W. Millar, John O'Melveny, A. E.

Ponting and, fifth from left, George Gore, vice president, general counsel and secretary. Guides are Ray Schultz, left, and Frank McNabb, right.

Rogers Lake Dry Again; HL-10 Resumes Flights

A warm sun, aided by dry desert winds, has worked its springtime magic on the surfaces of Rogers Dry Lake bed to enable NASA to resume flight tests of the Northrop-built HL-10 lifting body.

Heavy rainfall that left Southern California soggy for many weeks turned the normally dry lake bed into a giant sea. Only after drying was complete did NASA and Air Force aircraft utilizing the bed return to their normal flight tests.

John Manke, NASA test pilot, conducted the fourth powered flight of the HL-10 April 17. It was the first flight for the HL-10 since December 9.

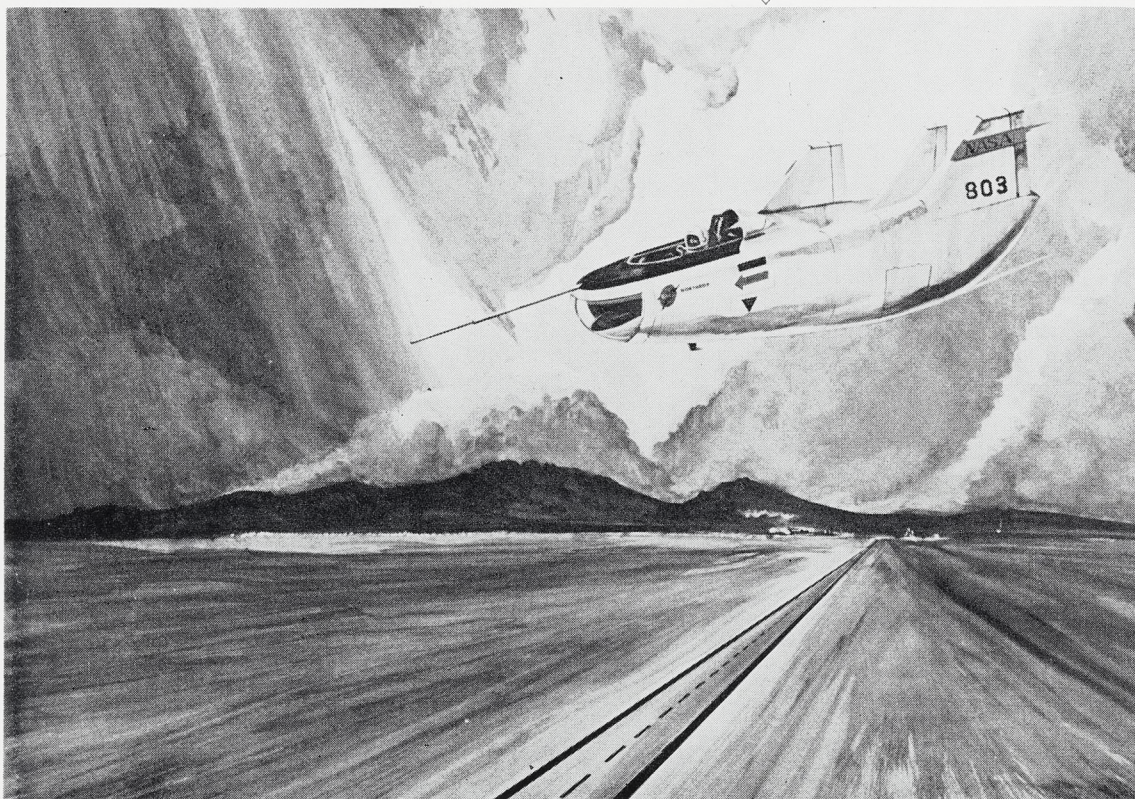
On April 25, NASA Test Pilot Bill Dana conducted an unpowered or free fall flight in the HL-10. Mr. Dana, a veteran test pilot on the rocket-powered X-15 Program, was making his first lifting body flight. It was programmed primarily as a checkout for Mr. Dana to acquaint him with lifting body handling characteristics.

acteristics.

NASA's Flight Research Center and the Air Force are conducting a joint program with lifting bodies, the small wingless craft which hold promise for use in future manned spacecraft programs. They can be guided through re-entry to controlled landings on the earth's surface.

The April 17 powered flight for the HL-10 saw the small flat-iron-shaped vehicle attain a top speed of about 700 mph and an altitude of about 54,000 feet through the use of three chambers of four in its rocket engine. This was slightly higher and faster than previous flights.

A second Northrop-built lifting body, the M2-F3 (new NASA designation for the M2-F2), is being phased through a modification program at NASA-Edwards and is scheduled to resume flight tests before the end of the year. A veteran of 16 free flights, the M2-F2 was damaged in a wheels up landing in mid-1967 and subsequently renovated by Northrop.



AN ARTIST'S CONCEPT of the Northrop-built M2-F3 lifting body vehicle shows third fin now being added in a modification program at NASA's Flight Research Center. The M2-F3,

along with the Northrop-built HL-10 lifting body and the X-24, are investigating possible vehicles for manned re-entry use. The HL-10 is currently engaged in rocket-powered flight.

NORTHROP DRIVE SET

U.S. Savings Bonds Advantages Cited

Advantages of U.S. Savings Bonds and Freedom Shares were outlined by a U.S. Treasury Department representative at a recent meeting of Northrop bond drive leaders planning the annual drive kickoff May 23.

Roberts Hughes, of the Los Angeles office of the Savings Bonds Division, praised Northrop employees for their past participation in the voluntary program and cited these U.S. Savings Bonds benefits:

—Tax Advantages. By placing the bonds in your child's name for an education fund, the child won't have to pay taxes on the

interest unless his total income is over \$900. Retirement plan use of the bonds will also save money at tax time because of the double deduction for persons over age 65. State and local taxes do not apply to these bonds.

—Safety. The strength of the U.S. Government backs the bonds up. If they are stolen, destroyed or damaged they can be easily replaced at no cost.

—Savings. The flexibility of the bonds allows them to be cashed in at any time. Full maturity benefits are realized after seven years on the bonds and four and

a half years on the Freedom Shares. Or they can be converted for higher denomination bonds for further savings value.

—Ease. Simple payroll deduction in any number of plans with varying amounts of investment (minimum 50 cents per week) makes saving easier for the employee.

"Northrop employees have been among the leaders in the patriotic purchase of U.S. Savings Bonds," Mr. Hughes said. "We in the Treasury Department are aware of their efforts in this area and commend them."

NORTHROP NEWSMAKERS

Agnes Henken, Norair, was feted recently on the eve of her retirement, ending an 18-year Northrop career, by her friends in Graphic Services.

Victor H. Carter, Norair, will make an address on "Value Engineering in Manufacturing" to the Long Beach Chapter of the American Society of Tool and Manufacturing Engineers May 15

at the Lakewood Country Club, Lakewood.

Floyd F. Damman, Norair, has been appointed general chairman for the California State Air Force Association's Convention October 17-18 in Long Beach. Guest of honor and banquet speaker will be Senator Barry M. Goldwater.

K. J. Oswalt, Norair, has authored a paper titled "New Generation High Strength Aluminum Casting Alloys" for presentation at the American Foundrymen's Congress this month and subsequent publication in its transactions.

H. M. Karaszewski, Norair has prepared a paper on "Wind Tunnel Operations" for presentation at the Instrumentation Society of America's 15th National Aerospace Instrumentation Symposium this month in Las Vegas.

H. Jack Behrens, Norair, has written an article titled "Predicting Cost Savings with the Learning Curve" for presentation before the American Association of Cost Engineers.

James M. Bridges, Norair, has written a paper titled "An Automated System for Mass Properties Data Control" for presentation at the Society of Aeronautical Weight Engineers annual conference this month.

Bill Stout, Norair, was guest of honor at a retirement party last month climaxing a 27-year Nor-

throp career. Mr. Stout, a young 70 years old, has worked in many Quality Control functions for Northrop.

Lee B. Johnson, Norair, has authored a paper titled "Low Sparking Hazard and Non-Magnetic Tools" for presentation before the American Society of Safety Engineers.

Sandra Linebarrier, daughter of Harvey Linebarrier, Ventura, is an entrant in the Miss Conejo Valley beauty pageant June 6. Miss Linebarrier was third runner-up in last year's competition.

M. A. Maurer, Ventura, addressed the AIA's Manufacturing Committee and its executive committee recently in Cincinnati, Ohio. His talk called for expansion of manufacturing education.

Rex Fairless, Ventura, has been elected to the Ventura County School Board.

U. F. (Ben) Beirne, Ventura, presented a paper at the National Electronic Packaging and Production Conference in Anaheim recently.

Dick Kipp, Ventura, has been elected chairman of the Rancho Conejo Industrial Golf League. He succeeds **Hal Bixby**, also of Ventura.

Unique Parawing Canopy Cloth Also Used to Power Sailboats

The same material that floats Northrop Ventura's intermediate scale Parawing gently down to earth is also used to send America's fastest sailboat whisking across the sea.

Originally developed for yachting, the thin, plastic-coated sailcloth is used for the canopy of the 4,000 square foot Parawing.

It is obtained from an East Coast firm which also lists the 12-meter yacht Columbia as a customer. The Columbia recently successfully defended its possession of the America's cup, symbol of international yachting supremacy, against an English ship.

Big Push

Mainstay of the Columbia's locomotion is its biggest sail, a spinnaker, made of Parawing-type sailcloth.

The major difference between

the pastel orange and yellow Parawing cloth and standard parachute material is the plastic coating. It makes the cloth non-porous so it holds the air.

A process known as "calendering" is used to apply the polyurethane coating which is less than .001 of an inch thick. The fiber receives 20 to 30 tons of pressure as it goes through hot steel rollers.

Yardage

When it arrives at Northrop Ventura it is in rolls similar to textiles in a yardage store.

**IS IT NEWS?
CALL EXT. 4273
HAWTHORNE**

"It sews beautifully," says Ted Szostek, Paralab foreman. The Paralab produces an intermediate scale Parawing in about seven weeks.

But the sailcloth's main virtue is its lightness and strength. It weighs just 2 1/4 ounces per square yard.

Evaluation of the sailcloth and other materials is continuing, according to Dr. R. V. Lashbrook and C. M. Mabry, Materials Engineering, and it is not yet assured that the same fabric used in intermediate-scale Parawings will be used in full-scale Parawings.

Northrop Ventura, under contract to NASA's Langley Research Center, Hampton, Virginia, is conducting a Parawing program aimed at establishing technology which could be applied to the development of manned spacecraft landing systems with a landing capability.



PARAWING 'SAILCLOTH' — Paralab Foreman Ted Szostek displays rolled samples of sailcloth which powers championship sailing vessels and is the Parawing canopy material.

Garner's Archery Inspires Family to Follow His Lead

When George Garner, Ordnance Engineering, Electro-Mechanical Division, won the State Field Archery championship in 1967, it interested his wife and daughter in the bow and arrow. Now they are champions, too.

Jody Garner won the Class A free style at the 1968 State Target championship match at Chula Vista last Labor Day and the 1968 National Field Archery championship at Salinas in August. Their daughter, Lori, 13, took the Junior Girl's State Target championship and the Class C Free Style in the National Field Archery competition.

His son, Randy, now 16, started shooting with his father when he was 13. He recently placed second in the youth class at the Southwest Regional championship tournament at Tempe, Arizona.

Mr. Garner's interest in archery goes back to his first bow which he made when he was seven. It was a willow stick with a rubber band for a string. His arrows were cottonwood stalks weighted with a nail in the end.

His interest lagged when his

rabbit stalking was not successful. It revived when he learned to make a real bow at a summer school project when he was 12. His first was of lemon wood, his second was of yew, the traditional wood used by Robin Hood and William Tell.

With the passing years his interest turned to guns and he eventually became NRC Gun Club commissioner. Then he started noticing archers practicing at noon. He dug out his old yew bow and joined them.

The 1967 field championship, which he won, was the first tournament he ever entered.

Now as NRC Archery commissioner at Anaheim, George holds a shoot every Friday night in the Recreation Hall. Beginner equipment can be made available and instructions given to anyone interested in taking up the hobby.

Although the archery-loving family will take on any kind of outside competition, they refuse to shoot against each other.

"We're afraid of getting beat!" Mr. Garner said with a smile.

Retirement Club To Hold Annual Reunion Dinner

Northrop Retirement Club will hold its annual Reunion Dinner May 21 at the Alondra Club, Lawndale.

The club will be open to guests at 3 p.m. Dinner will be served at 6 p.m.

Entertainment will include filmed highlights of the Apollo 8 mission.

Guest speaker for the evening will be Harry Claggett who directs Northrop's efforts in the joint Brown and Root / Northrop support operations at NASA's Manned Spacecraft Center at Houston. Mr. Claggett will discuss Northrop's role in the manned spacecraft program.

Reservation forms have been sent to club members. However, any retired Northrop employee may sign up for the reunion by contacting the nearest Northrop Personnel Activities office.

The Retirement Club also plans a special bus excursion to Northrop Night at Disneyland May 24, departing Hawthorne at 6:30 p.m. Contact Personnel Activities for tickets.



UP AND AWAY—An MQM-74 target drone leaps from the desert sands in one of 36 launches at the recent Northrop Ventura training program for Navy personnel.

NRC Wanderers Club Sets Memorial Weekend Jaunt

A three-day camping trip to Butterfield Country over the long Memorial Day weekend has been planned by members of the NRC Wanderers Camping Club.

"Twenty-five reservations have been made for May 30, 31 and June 1," said Bill Shook, Electronics Division Camping Club commissioner. "However, the campsite can handle as many as 80 campers and trailers," he added.

Butterfield Country is 8,500 acres of wilderness located off Highway 395 near Rancho, California. Within its borders are a 500-acre lake, swimming hole for children, and facilities for boating, fishing, bicycling, barbecuing and picnicking.

Accommodations

According to Mr. Shook, each campsite is 30 by 60 feet and offers electricity, water and sewer outlets. Cost of the services is \$3 per 24-hour period.

"Employees planning to attend this campout must bring a camper or trailer. No tent camping is allowed, and all visitors must sleep inside their vehicles," stated Mr. Shook.

"A fishing derby, wiener roast, hayride for the children and young adults, potluck dinner for the whole family and bingo are among the special events we have planned for club members," he added.

Wagonmasters for the event are Bill Bozanich, Chris Shook and Gordon Diller. They will arrive at Butterfield Country May 29 to set up signs pointing the way to the club's campsite.

DR. BRUCE MILLER DISCUSSES C-5 IDNE

Dr. Bruce J. Miller, deputy director of the Systems Analysis Laboratory in the Navigation department was the guest speaker recently at a meeting of the Los Angeles Chapter of the Aerospace and Electronics Systems group, Institute of Electrical and Electronic Engineers.

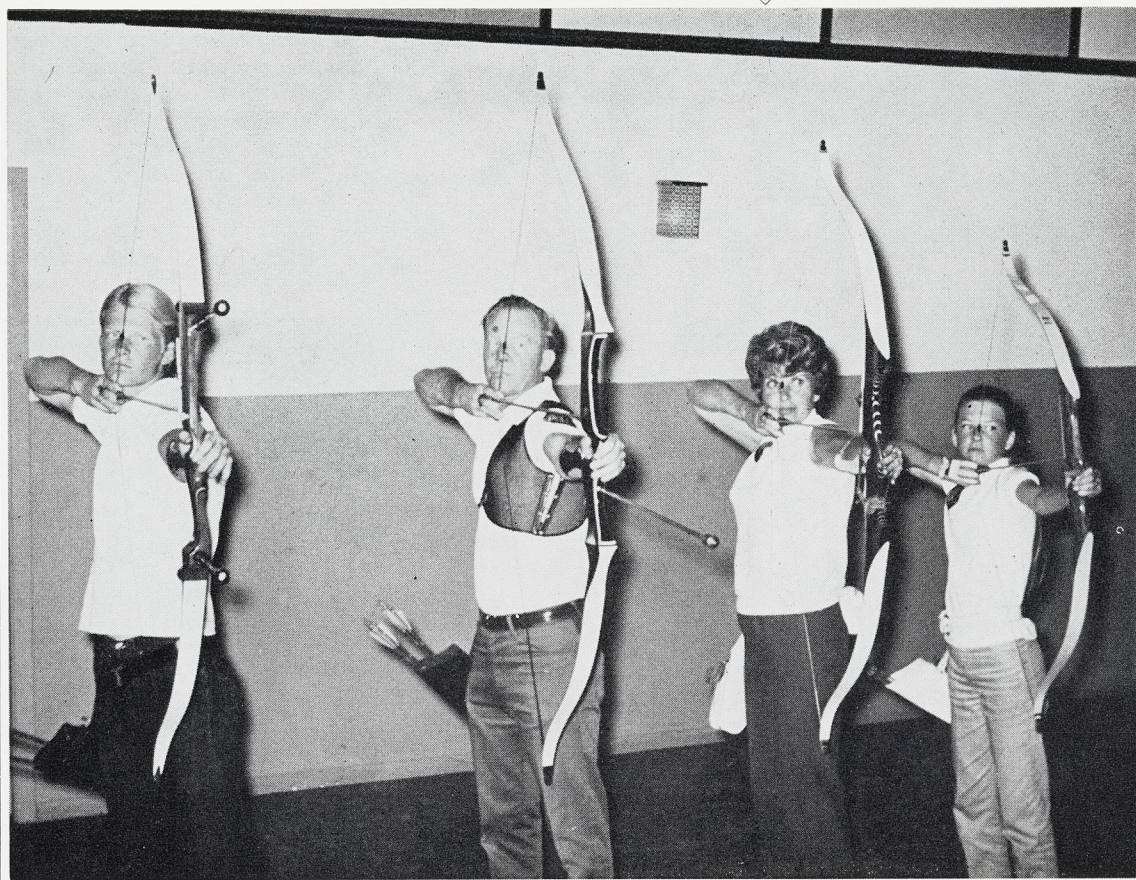
Dr. Miller addressed the audience on Aircraft Navigation and Guidance Systems, and used Electronics Division work on the C-5 Inertial Doppler Navigation Equipment as an example of a state-of-the-art application of statistical filtering techniques.

"The mathematical methods used in the digital computer of the IDNE are undoubtedly among the most sophisticated of any aircraft in the free world," said Dr. Miller.

He also discussed future aircraft navigation and guidance systems.



Dr. Miller



FOLLOWING STRAIGHT as an arrow the archery trailpioneered for them by George

Garner, second from left, are his son Randy, wife Jody, and daughter Lori.

Blood Banks Afford Northrop Another Opportunity to Help

The Red Cross Bloodmobile will be at Norair on Wednesday, June 11 at the NRC Clubhouse, 12626 Chadron, according to Marie Tully, blood bank chairman.

Visits of the bloodmobile to Anaheim, Palos Verdes, Torrance and Santa Fe and of the Tri-Counties Blood Bank to Ventura will be scheduled later in the summer.

"Northrop has responded wonderfully in the past," Mrs. Tully said. "In 1968 our total Northrop contributions for all divisions were 1,908 pints. As of today we have drawn 688 pints. While this leaves a credit balance of 1,120 pints, new blood is always needed. Unexpected demands constantly arise and we have community responsibility as well."

Mrs. Tully pointed out that blood donated to the banks is credited both to the account of the donor and to Northrop.

"The blood bank is just what the name implies," the blood bank chairman went on. "It is a bank where we can make a deposit against future need. All Northrop employees and their families are eligible to use the bank."

Ventura is outside the area covered by the Red Cross Blood Bank. Personnel there donate to the Tri-Counties Blood Bank, Inc. This is an independent operation not associated with the Red Cross, however, procedures for giving and withdrawing blood are the same.

THEY BELIEVE IN THE BANK...



Mr. Schneider

Phil Schneider, Electronics Compensation administrator:

"I started my personal blood bank program while I was a student in college. At the next Northrop blood drive, I plan on giving my 20th pint of blood. My purpose for giving is that it provides blood for those in need and provides insurance for my own family against any emergency requiring blood transfusions."

Lucille Berggren, Cafeteria, Norair:

"My husband and I have both been employed by Northrop for the past 15½ years. For the past 13 years my husband has had to battle cancer and on several occasions has had to have blood. So we are truly grateful for Northrop's participation in the blood bank to which I have donated on three or so occasions. The blood bank is indeed a life saver."



Mrs. Berggren



Mr. Lang

Willard "Bill" Lang, financial analyst, Ventura:

"I am alive today because of the Tri-Counties Blood Bank and a massive community effort to find blood of my rare A-negative type. An emergency drive brought in 27 pints to help me through surgery on my aorta, a major heart blood vessel. Twenty individual donors also responded. The blood I received was equal to six full changes in my body."

Maxine Boen, accounting clerk, Accounts Payable, Electro-Mechanical:

"I give blood to the Red Cross Blood Bank every time I can. I started 10 years ago when our PTA started a blood bank account for the children. After I found out how expensive and necessary blood is, I kept giving. In the last 10 years, I have averaged giving twice a year at each visit of the bloodmobile. To everyone I say, give all you can."



Mrs. Boen

GOLFERS TO TACKLE MASSACRE CANYON

Northrop Golf Club will stage its May tournament over the Massacre Canyon Golf Resort course May 24 with tee times beginning at 7 a.m.

Reservations will be accepted

by Norair Personnel Activities beginning next Monday. Accommodations may be reserved at the Massacre Canyon Inn by calling 714-654-7301. Housing reservations do not constitute an entry.

Ex-Boxing Champion Turns to Fine Arts

Minor "Peck" Campbell, Plant Security specialist at Northrop Electro-Mechanical Division, Anaheim, started out boxing on canvas and switched to painting on it.

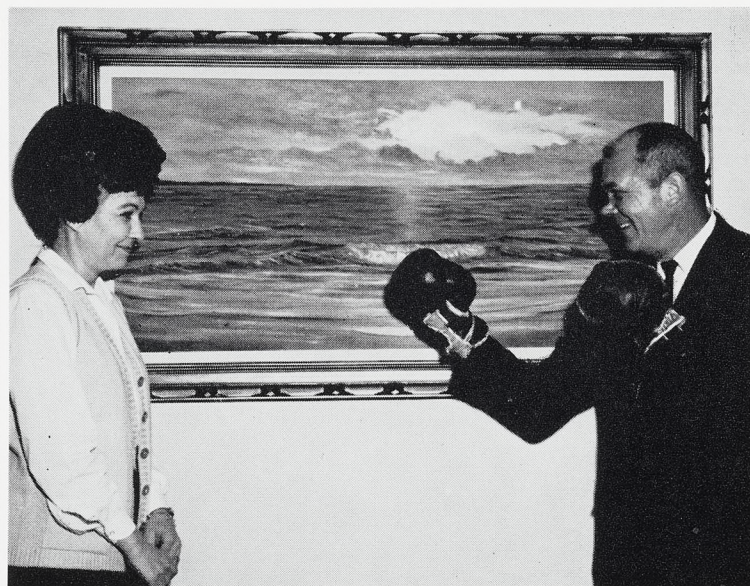
He began boxing as a three-year-old, taking lessons from his father, a professional prize fighter. His lessons weren't gentle. Many days he ended with a bloody nose and painful bruises. When his mother objected, his father replied, "He's got to learn to take care of himself. The ring is tough."

Peck—his father took the name from "Peck's Bad Boy" a mischievous storybook character famous around 1900—turned pro himself in 1939. He was 16 and unable to get a job due to the depression. He won his first fight and took the Semi-Golden Gloves championship.

In the next three years as a boxing pro he fought 93 bouts. He lost two, both due to broken bones.

His manager—a friend of his late father—kept matching him with opponents who outweighed him by at least 20 pounds. This made Campbell's wins look even better and he soon came to the notice of the Chicago promoters. He received an offer to fight for them—and losing when he was told to.

Rather than to accept the pro-



"PECK" CAMPBELL, former boxer, puts on the gloves again to forestall any criticism of his latest seascape from his wife, Verda. Mrs. Campbell is also an excellent artist. Photo by Ron Grishaber.

moter tie-in he quit the ring and went to work in a shoe factory. He left this to work in the oil fields in the Gulf of Mexico, as a piano player in a "honky-tonk," with a fire department and then the police force. From here he got into industrial security and his present work with Northrop Electro-Mechanical Division. He has been with Northrop 13 years.

It was while working here that he became a professional artist. He had never had any interest in

art and is surprised himself at what happened. His wife, Verda, had painted but had given it up before she was married. One day her brother-in-law, a noted sculptor, insisted she start again and gave her an oil kit.

To encourage her to start again, Peck said, "Go ahead, I'll keep you company."

He did and before long became so interested he was borrowing her brushes and paints. Then he started to take lessons from the best artists he could find. He progressed so well that today both he and Verda are professional artists who regularly sell their paintings. While he hopes to stay with Northrop until he retires, after that he has his goal set on a gallery of his own.

He specializes in seascapes, although he was warned that this is the hardest of all subjects to paint.

Ben Knell Teaches Hockey And Sportsmanship to Boys

Ben Knell, Norair Safety Engineering supervisor, has one of the "most gratifying hobbies in the world." It is working with young boys from the ages of five to 20 and teaching them character, sportsmanship and teamwork as a coach in the world's fastest and most exciting sport.

The medium Ben uses is ice hockey. A former professional in the sport, he is associated with the Bay Harbor Minor Ice Hockey Association.

"It is really rewarding," Ben said. "Some boys are just learning to ice skate when they join. We work with them until they become proficient. Hockey is a rough sport and a lot of fun, but that is not as important as teaching the boys cooperation, sportsmanship and ability to work as part of a team."

He went on to tell how they get boys who are self-centered and often throw tantrums. "Working with the team tones them down and they learn to pull with the rest. Sports do build character. I see it happen every day."

The Minor Hockey Association summer session, now in progress, teaches the boys the fundamentals of hockey and the fine points of skating. Hockey pants and jerseys are furnished by the association. Parents provide the sticks, gloves, skates, shoulder pads, elbow pads and knee pads.

Ben began his own hockey as a child. At 11 he joined a minor hockey league similar to the one he now coaches. After four years playing on a high school team, he turned professional.

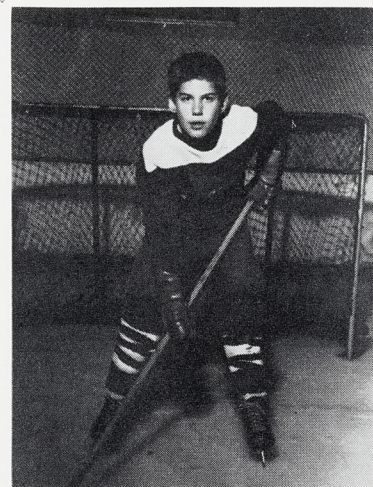
"Visitors are always welcome to come and watch us work out," Ben said. "Teams are on the ice from 5 p.m. to 8 p.m. on Saturdays, and from 4 p.m. to 11 p.m. on Sundays, at the Olympic Ice Arena, Harbor City. There is no charge for watching practice."

There are at least four young men from Northrop families in the Bay Harbor Red Wings league. They are Jon and Joe Binning, sons of Lucile Binning, secretary in the Cost Estimating department; Bryan Stripsky, son of Andy Stripsky, Construction and Maintenance; and Danny Poppe whose father works on the Boeing 747 Program.

"There are probably many others playing with other teams in the league," Ben added. "Teams in the league represent the Los Angeles area and San Diego. We would like to have a lot more boys out this year."

"One of the boys," Ben reports, "after a year of playing minor ice hockey, is so interested that he is saving pop bottles to earn his way to a week's training at a professional hockey school in Canada this summer. He has only 7,000 more bottles to go."

Parents interested in having their sons join the league can contact Mr. Knell on ext. 1067, Norair.



JON BINNING, son of Northrop employee, Lucile Binning, is developing into a star in the Bay Harbor Minor Hockey Association.



BEN KNELL (right) with one of the teams he co-coaches in the Bay Harbor Minor Hockey Association.

Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale	
T-Bird, 1963, h/top, 12,000 miles on rebilt. eng., \$900. 213-635-7942.	A
Volkswagen, 1962, rebilt. eng., \$650. 213-676-9858.	A
Dodge, 1968 Super Bee, 4-spd. stick shift, \$2,450. 213-377-2673.	A
Station Wagon, 1956 Ford, 2-dr., V8, auto. trans., r/h, \$200. 213-645-6268.	A
Thunderbird, 1960, p/s, p/b, r/h, \$450. 213-679-3958.	A
Volkswagen, 1967 w/sunroof, \$1,800. 213-675-4121.	A
Buick, 1959 Le Sabre, 2-dr., p/s, p/b, auto. trans., \$275. 213-882-9433.	A
Camaro, 1968, S.S. RS., 396, air, \$2,800. 213-644-7040.	A
Buick, 1968, Skylark convt., full power, air, \$2,100. 213-324-7856.	A
Plymouth, 1967 Barracuda fastback, V-8, r/h, power, 20,000 mi., \$1,950. 213-322-1661.	A
Pickup, 1955 Chevy, 1/2-ton, Hydramatic trans., lumber rack, rebilt. eng., 6 cyl., \$375. 213-676-6822.	A
Cadillac, 1960 Eldorado convt., full power, air, \$980. 213-389-5827.	A
Volkswagen, 1961, rebilt. eng. & trans., radio, \$675. 213-866-5412.	A
Volkswagen, 1967, r/h, \$1,500. 213-428-5428.	A
Chevrolet, 1956 Bel Air, 2-dr., V-8, \$275. 213-673-1626.	A
T-Bird, 1959, 48,000 mi., \$500. 213-374-5696.	A
T-Bird, 1961, all-power, a/c, AM-FM radio, \$700. 213-677-6647.	A
Dodge, 1967 108 van, V-8, auto. 3/4-ton, hvy. duty equip., \$2,100. 213-532-9784.	A
Pontiac, 1965 GTO convt., 389 eng., p/s, r/h, 4-spd. console, \$1,050. 213-397-0881.	A
Dodge, 1958, 2-dr. h/top, w/1960 Chrysler 383 cu. in. eng., \$375. 213-566-4306.	A
Corvette, 1958, custom front end, \$850. 213-732-4229.	A
Plymouth, 1967 Barracuda convt., V-8, 270 cu. in., auto. sport console, p/s, extras, \$1,900. 213-370-6929.	A
Oldsmobile, 1964 Cutlass, V-8, r/h, 4-spd. trans., \$1,150. 213-679-5506.	A
Chevy II, 1963 S.S., r/h, convt., p/s, a/c, \$695. 213-673-0645.	A
Pontiac, 1968 Grand Prix, p/s, p/b, fact. air, stereo radio, \$2,725. 213-292-5064.	A
Volkswagen, 1967 Squareback, new tires & brakes, \$1,695. 714-523-2495.	A
Cougar, 1967, 390 GT, auto., extras, \$2,490. 213-395-8844.	A
Grand Prix, 1963, 2-dr. h/top, a/c, auto. trans., p/s, p/b, \$995. 714-827-3701.	A
TR-4, 1962, Michelin radials, \$495. 213-374-3543.	A
Chevrolet, 1966 El Camino, 283 cu. in., 4-spd., AM-FM radio, fiberglass bed cover, \$1,700. 714-527-5212.	A
Volvo, 1969 2-dr., auto. trans., AM-FM radio, htr., 2,000 mi., \$3,200. 714-531-3945.	A
Station Wagon, 1961 Falcon, 4-dr., \$295. Box 801.	A
T-Bird, 1961, a/c, p/s, p/b, p/w, \$450. 213-833-0742.	A
Station Wagon, 1961 Chevrolet Nomad, 9-pass., V-8, auto. trans., p/s, p/b, r/h, \$695. 213-676-2145.	A
Porsche, 1957 Speedster, customized, \$1,450. 213-472-2723.	A
Ford, 1964 Galaxie 500, V-8, p/s, p/b, a/c, r/h, load levelers, \$950. 213-675-2331.	A
Ford, 1959 Country Sedan, 332 eng., r/h, Fordomatic, \$150. 213-676-0432.	A
Mustang, 1967 2+2 h/top, 289 eng., auto. trans., fact. air, r/h, p/s, disc p/b, \$2,200. 213-377-6434.	A
Station Wagon, 1966 Ford Fairlane, r/h, \$1,400. 714-536-6818.	A
Oldsmobile, 1963 Super 88 Holiday h/top, p/s, p/b, a/c, Frantz filter, \$1,000. 213-326-6195.	A
Chevrolet, 1919 Touring, good parts car, \$350. Box 802.	A
Mustang, 1965 h/top, 289-4V, auto. trans., p/s, p/b, \$1,400. 213-541-2071.	A
Mustang, 1966 h/top, fact. air, p/s, auto. trans., V-8, \$1,795. 714-527-5506.	A
Volkswagen, 1962, new eng. & trans., \$1,000. 213-676-3628.	A
MGB, 1967, r/h, tarp, tool kit, \$1,800. 213-436-5965.	A
Chevelle, 1966 S.S. 396, 4-spd., headers, mags, \$1,950. 213-675-4764, 213-673-2121.	A
Datsun, 1966 roadster, 1600 Series, hard & convt. tops, \$1,900. 213-373-3137.	A
Station Wagon, 1963 Ford, r/h, p/s, p/b, fact. air, \$475. 213-839-6084.	A
Volkswagen, 1965 sunroof, radio, Crager mags, 1440 cc big bore kit, other access., \$1,750. 213-542-3697.	A

Household Items For Sale	
Washer-Dryer comb., RCA Whirlpool, gas, \$45. 213-679-0074.	B
Stove, O'Keefe & Merritt, grill, auto. pre-set oven, elec. rotisserie, \$95. 213-545-1059.	B
Range, 31" Hotpoint, 4-burner, broiler, white, \$75. 213-379-4476.	B
Bar w/2 stools, \$28.30. 213-644-2154.	B
Rocker, maple, \$10. 714-541-9796.	B
Sofa, 7 1/2', modern, \$100. 213-545-5924.	B
Couch, Danish modern, w/easy chair, \$55. 213-377-2816.	B
Sewing Machine, Singer, walnut cabinet, \$29.50. 213-329-6813.	B
Refrigerator, 10 cu. ft. Westinghouse, w/ crosstop freezer, \$40. 213-421-1300.	B
Washer, apt. size, \$50. 213-672-8060.	B
Bed, hospital-type, elec. controls, \$275. 213-326-1730.	B
Washer, G.E. automatic, \$10. 213-379-9676.	B
Heater, wood or coal burning, 3' high x 18" square, \$15. 213-758-7041.	B
Bar, formica top, 2 stools, many other items, \$30. 213-675-3995.	B
Stove, gas, 1 yr. old, \$65. 213-673-4110.	B
Stove & refrigerator, apt. size, \$100. 213-324-4507.	B
Deep Fryer, Dormeyer, \$15. 213-645-3227.	B
Coffee Table, walnut veneer, No-Mar, w/end tables & 2 lamps, \$45. 213-675-6397.	B
Stove, delux, \$45. 213-542-2353.	B
Mattress, vibrating-type, box springs & frame, dble. bed size w/timer, \$50. 213-537-3098.	B
Crib, mattress, misc. equipment, \$25. 213-371-1949.	B
Bed, baby's, new mattress, \$10; other infant items. 213-758-0582.	B
Stove, 4-burner Blue Bonnet, \$30. 213-532-9180.	B
Washer, auto. Hotpoint, 2 cycles, white, \$60. 213-371-3725.	B
Draperies, pr., 186" x 90" long, ivory, water weave moire, \$150. 213-375-5856.	B
Miscellaneous For Sale	
Pups, mixed hound & border collie, \$5 ea. 213-379-8324.	C
Cemetery Lots, Green Hills Memorial Pk., San Pedro, Sunset Terrace location, \$450 ea. or \$600 both. 213-833-3826.	C
Sailboat, Cal 20, sleeps 4 below deck, \$1,900. 213-377-2355.	C
Radio, short-wave, Heath AR-3, broadcast band thru 30 mc, \$10. 213-451-5330.	C
Lawnmower, gas powered, reel-type, \$35. 213-541-2083.	C
Shoe Skates, girl's, size 5, \$3. 213-379-1049.	C
Cabin Cruiser, 1965 Trojan, 25', 185 h.p. V-8 Gray Marine, \$4,500. 213-323-7688, 213-532-8775.	C
Bicycle, 20" Sting Ray, \$25. 213-679-9658.	C
Motorcycle, Suzuki 80, \$170. 714-838-7523.	C
Swim Pool, 15' x 3' w/ladder & filtering system, \$45. 714-531-4958.	C
Soft Top for model 1600 Datsun & tonneau cover, \$50. 213-676-6390.	C
Cabinet, stereo, 6' walnut, cut for 12" or 15" speakers, \$110. 213-375-4345.	C
Motorcycle, 1964 Bultaco, dirt bike, 200 cc, \$300. 213-676-8892.	C
Townhouse, 3 yrs. old, 3-bdrm., 2 1/2 baths, laundry rm., f/place, bltins, cpts., dps., 1,700 sq. ft., 2-car gar., patio, pool, 15 min. to Anaheim plant, assume 5 1/2% FHA, \$24,950. 714-827-6790.	C
Guitar, Gibson Les Paul Special, \$250. 213-377-7670.	C
Camera, Nikon F Photomic-P, f/1.4, 2 yrs. old, \$250. 213-436-2045.	C
Rim Wheels, 5 2-pc., for Ford truck w/700-15 Firestone 110 transport tires, \$250. 714-827-7189.	C
Seat for Dodge van, full size, rear, \$15. 213-674-8867.	C
Tape Deck, Craig, stereo, 4 & 8 track, \$75. 213-675-3711, 213-679-1832.	C
Motorcycle, 1968 175 Honda Scrambler, used very little, \$450. 213-679-8394.	C
Mobile Home, Rod & Reel Deluxe, 10' x 55' Expando, 2-bdrm., full alum. awning, adult pk., Anaheim, \$5,500. 213-324-1012.	C
Accordion, Cantina, 120-chords, w/case, \$75. 213-676-8456.	C
Arm Saw, Black & Decker, bench & joiner, \$250. 213-434-9533.	C
Rims, Astro Supreme, w/4 wide oval tires, fits Chev., \$130. 213-755-7462.	C
Engine, 1960 T-Bird 352, 300 h.p., valves ground recently, \$65. 213-325-4390.	C
Motorcycle, 1967 B.S.A. Victor, 441 cc, \$500. 213-371-1905.	C
Boat, 24' Chris Craft, marine radio, bait tank, full galley, sleeps 4, \$2,495. 714-525-3530.	C
Guitar, elec., amplifier & 2 jacks, \$100. 213-676-3379.	C
Camera, 35mm Exakta, reflex, 50mm f/2.8 & f/4.5 wide angle lens, case, \$100. 213-327-8927.	C
House, 5 min. walk to Northrop, 2-bdrm., cpts., dps., patio, FHA, take over loan at 5 3/4%, \$2,000 dn., \$19,850. 213-675-5331.	C
Trailer, 1965 13' Shasta, brakes, extras, \$785. 213-451-9318.	C
Hobby Horse & tricycle, \$15. 213-321-2674.	C
Stereo, Fisher 400-T recvr., 150 watts, 2 Fisher XP-66 spkrs., Garrard SL-75 TT, 2 mos. old, \$650. 213-672-9226.	C
Engine, Chev. 6, just rebuilt, \$50. 213-373-4664.	C

Miscellaneous For Sale	
Books, Reader's Digest condensed, detective, Doubleday book of the month club, others, \$1.50 & \$2.50 ea. 213-674-1847.	C
Paint Sprayer, Craftsman, 1/3 h.p. gun, hose & cart, \$55. 213-788-9709.	C
Bait Tank, 2-scoop, pump, fittings, o/transom mod., \$45. 213-829-8221.	C
Accordion, Universal, w/case, \$150. 213-328-1841.	C
Home Beer bar, bronze color, w/gas bottle & 1/4 keg, \$110. 213-375-7822.	C
Excercycle, \$165. 213-377-8856.	C
Lambretta Scooter, 150 cc, \$325. 213-676-3784.	C
Mini-Bike, 3 1/2 h.p., \$80. 213-675-3885.	C
Watch, ladies, Bulova Embraceable, 17-jewel, white gold, \$25. 213-679-5364.	C
Home, 5-bdrm., refrig. a/c, 3-car gar., 600 sq. ft. brick & redwd. patio, landscaped, sprinklers, fences, dps., near Northrop Ventura, \$36,500. 213-889-8075.	C
Apts, 6 units, in Anaheim, \$13,000 dn. at 8%, \$57,000. 213-861-1529.	C
Mini-Bike, Taco 44, 3 h.p., \$100. 213-377-5853.	C
Apts, 6 2-bdrm. w/owner's 2-bdrm. home, 2 lots, 50" x 150", \$10,000 dn., assume present loans, will finance bal. at 7%, \$82,000. 213-320-2827.	C
French Poodles, toy, pureblood, 4 wks. old, cocoa & black, \$25. 213-679-7840.	C
Golf Clubs, Ken Smith custom woods, driver, 3 & 4, \$20 set. 213-675-9673.	C
Console, color TV-stereo record player & radio, maple cabinet, \$250. 213-676-8789.	C
Cemetery Lot, Inglewood Pk. Park View section, \$450. 213-753-7484.	C
Travel Trailer, 1966 15' Aristocrat, sleeps 6, \$1,150. 213-833-4191.	C
Bowling Ball & bag, \$8. 213-323-8213.	C
Motorcycle, 1963 Greeves, square barrel, extras, \$400. 213-676-0573.	C
Drafting Machine, Bruning, \$65. 213-328-5594.	C
Acreege, 2 1/2 acres, near Rosamond, \$39 dn., \$39 mo., no int., \$3,900. 213-378-1026.	C
Camper, 1961, 8', sleeps 3, bltin cabinets, ice box, \$425. 213-882-0984.	C
Acreege, 5 acres, Perris Lake, hunt, trail ride, \$100 dn., \$5,990. 213-377-1074.	C
Engine, for 1961 Corvair, incl. headers, starter, 120 cam, \$100. 213-374-6244.	C
Speakers, 2 AR-2A high fidelity, \$45 ea. 213-372-7875.	C
Lens, telephoto, 135 mm f:2.8 Minolta McRokkor auto., for Minolta SRT-101, \$80. 213-477-7741.	C
Units, 1 2-bdrm., 1 1-bdrm., \$2,000 dn., \$10,000. 213-675-1776.	C
Trailer axle, 6' long, incl. 2 9" wheels & 2 tires, \$35. 213-371-5373.	C
Swim Pool, Doughboy, 25'x4', new liner, filter, access., \$195. 213-370-0990.	C
Revolver, Ruger convt., 22 std. & magnum, 7" bbl., holster, box mag. rnds., \$50. 213-754-5358.	C
Engine, for Chev., 283 cu. in., w/power heads, \$35. 213-372-4797.	C
Lots, 11, 50 x 100, Las Vegas, 25% dn., 6 1/2% int., proposed coml., \$21,500. 213-936-5903.	C
Motorcycle, 1969 Kawasaki, take over \$26.03 mo. pymts. or \$430. 714-894-2133.	C
Swim Pool, Doughboy, 4'x18' w/Sears mod. 4356 filter, \$125. 714-637-9353.	C
Motorcycle, 1964 BSA, 650 cc, \$600. 213-679-7400.	C
Engagement Ring, diamond, size 5, .21 carats, \$160. 213-379-1708.	C
Motorcycle, 1966 BSA Lightening, 650 cc, \$700. 213-352-3818.	C
Wheel, 14", complete w/usable spare tire for Chev., \$7. Box 803.	C
Bicycle, ladies, \$15. 213-430-2619.	C
Drum Set, white pearl, \$100. 213-675-9433.	C
Home, 4-bdrm., 3 baths, lge. heated pool, family rm., Thousand Oaks, lease \$400 mo., or \$51,500. 805-495-8089.	C
Sun Lamp, Rexall, used very little, \$4. Box 804.	C
Lot, Palm Desert, near golf, airport, 7,500 sq. ft., terms, \$500 dn., \$58 mo., \$4,500. 213-241-0326.	C
Car, electric Marketour pickup, \$325. 213-370-0250.	C
Co-Op, lge. 2-bdrm., dps., cpts., free laundry, fenced patio, take 2nd, \$14,800. 213-678-1649.	C
Cornet, 1 yr. old Lafayette, \$80. 213-695-8349.	C
Washbowl & toilet, white, chromium fixtures incl., \$20. 213-679-6982.	C
Pistol, Star, model B, 9 mm, holster, \$70. 213-785-1405.	C
Ski Boat, 14' Bristol, 45 h.p. MK 58A Mercury outbd., trailer, \$695. 714-897-6992.	C
Tent Trailer, 96 ft. interior space, 14" whls., lge. storage areas, \$325. 714-528-8582.	C
Rifle, British .303, w/sling & ammo, \$25. 213-962-2867.	C
House, 3-bdrm., lge. kitchen & dinette, 50'x 150' lot, lge. back yard, No. Redondo, \$23,900. 213-379-1885.	C
Camp Stove, Coleman 3-burner, \$15. 213-676-7109.	C
Mini-Bike, Roma Nova, 3 1/2 h.p., disc brakes, \$125. 213-378-2369.	C
Surfboard, 9', \$40. 213-675-8278.	C
Motorcycle, Bultaco Shipra-S, 200 cc, new eng., \$450. 213-370-1963.	C
Cartop Carrier, Sears, \$10. 213-370-6896.	C

Miscellaneous For Sale	
Motorcycle, 1968 Honda CL 350 Scrambler, \$650. 213-322-5410.	C
Poodles, mini, male, black & grey, 3 mos. old, AKC, \$50. 213-375-5888.	C
Rifle, Winchester mod. 94, 30-30 carbine, w/case, \$75. 213-670-3733.	C
Tape Recorder, 4-track stereo, Concord 444, access., triple ply tapes, \$100. 213-378-4598.	C
Kittens, Himalayan, males, 8 wks. old, champ. blood lines, \$125. 213-374-2945.	C
Hurst Kit, Mystery Shifter for Chev., \$15. 714-838-7161.	C
Acreege, 3 acres, cabin, electricity, Lucerne Valley, \$2,500 parcel. 213-370-9384.	C
Wanted to Buy	
Trailer Hitch, E-Z Lift, good condition. 213-676-5787.	D
Revolver, single action Army Colt or Great Western, 5 1/2" or 7 1/2 bbl., pay up to \$50. 213-532-7634.	D
Jeep, late model V-6, or Toyota Land Cruiser. 714-535-4671.	D
Marimba, Deagan or Musser in good condition. 213-472-1743.	D
Box Springs for king-size bed. 213-670-8453.	D
Chevrolet, Dodge, Ford, or Volkswagen van, 1964 or 1965, preferably windowless, pay cash if reasonable. 714-879-7921.	D
Outboard Motor, for dinghy, prefer 1 1/2 h.p., low price. 213-672-4231.	D
Hardtop, to fit 1967 Corvette convertible. 805-947-8587.	D
For Trade	
Stove, G.E., 2-oven elec. push button, trade for piano. 805-498-8202.	E
Volkswagen, 1968, trade for older VW bus or camper. 714-689-3247.	E
Free (To Be Given Away)	
Kittens, 4, male & female, box trained. 213-326-5731.	F
Kittens & cats, all ages. 714-827-6834.	F
Rentals Offered	
Apt, 1 & 2-bdrm., cpts., dps., bltins, all elec., closed gar., unfurn., \$110 to \$135. 213-375-9397, 213-375-2091.	G
Trailer, sleeps 5, \$35 wk. 714-528-3533.	G
House, 4-bdrm., 2 baths, furn., washer, dryer, cpts., dps., remodeled, 4 short blks. to Northrop, utilities pd., \$240 mo. 213-833-2512.	G
Cabin, Lake Arrowhead, North shore, 200 ft. from lake, \$120 wk. 213-375-2255.	G
Apt, new lge. 2 & 3 bdrm., bltins, cpts., dps., all elec., patio, closed gar., \$185 to \$225. 213-372-2222.	G
Cabin, Big Bear Lake, \$30 w/end. 213-867-0662.	G
House, 2-bdrm., new cpt. fenced yd., near La Brea, Inglewood, avail. June 20, \$185 mo. 213-292-9489.	G
Garage, 1-car, in Hermosa Beach near ocean, \$10 mo. Box 805.	G
Cabins, Idyllwild, 1&2 bdrms., streams, patio, f/place, \$20-\$35 w/end; \$50-\$80 wk. 213-754-5288.	G
Apt, 2-bdrm., unfurn., close to Northrop, \$80 mo. Box 806.	G
Cabins, Lake Gregory & Crestline, sleeps 6, make reservations for June-Sept., \$25 w/ends; \$60 wk. 213-391-2040.	G
Child Care	
Child Care, wanted, mature woman, either live in or drive, 2 school age children & infant, 6:30 a.m. start. 213-320-6685.	I
Babysitting, my home, across from Romona school. 213-675-1953.	I
Child Care offered, my home, fenced play-yard, Gardena. 213-676-3882.	I
Personals	
I wish to thank you all sincerely for your kind expressions of sympathy in the recent loss of my husband, William. MAXINE POD-VOLECKY & DAUGHTERS.	L
Ironing done in my home, Monday through Friday, 15¢ per pc., white shirts 10¢ extra. 213-644-5028.	L
River Raft Trip, space for a few more pvt. planes & people for Colorado River fly-in Sept. 13-18. 714-847-2648.	L
Sincere appreciation for the thoughtful sympathy of friends & associates on the passing of my father. BETTY-LEE SCOTT & FAMILY.	L
Reward, \$100 for person or persons witnessing auto accident at 120th St. in front of Northrop Employment parking lot, 4 p.m., December 4, 1968. 213-645-9873.	L
Need someone to reload 20 ga. and/or magnum shotgun shells. 213-671-0175.	L
Distressed family needs household furnishings desperately, call Welfare coordinator, Norair ext. 4786.	L

Rides and Riders	
Rides Wanted	
7 a.m. — 3:45 p.m.	
Avalon & 186 St., Gardena. Genaro Chapa, Norair ext. 2568, 213-323-9447.	
7:30 a.m. — 4:15 p.m.	
Western & 162 St., Gardena. Need ride home only. Carol Gosche, Norair ext. 4453, 213-532-9180.	
Brea Canyon Rd. & 5th Ave., Diamond Bar. R. W. Scott, Norair ext. 1293, 714-595-1115.	
8 a.m. — 4:45 p.m.	
Huntington Beach area to Anaheim. Ben Katz, Elec. Mech. Anaheim ext. 343, 714-968-2780.	
Bellflower & 7th, Long Beach. June through August, Hazel Darnell, Norair ext. 1842, 213-675-5258.	
4:12 p.m. — 12:42 a.m.	
El Segundo & Normandie, Los Angeles. Rose Herron, Norair ext. 1582, 213-754-3665.	
4:42 p.m. — 1:12 a.m.	
From Riverside via Garden Grove & San Diego Fwy. or Ontario-Pomona & San Bernardino Fwy, John R. Houston, Norair ext. 2328, 714-689-3247.	
Rides Offered	
7:30 a.m. — 4:15 p.m.	
Brea Canyon Rd. & 5th Ave., Diamond Bar. R. W. Scott, Norair ext. 1293, 714-595-1115.	
8 a.m. — 4:45 p.m.	
Huntington Beach area to Anaheim. Ben Katz, Elec. Mech. Anaheim ext. 343, 714-968-2780.	
4:42 p.m. — 1:12 a.m.	
From Riverside via Garden Grove & San Diego Fwy. or Ontario-Pomona & San Bernardino Fwy, John R. Houston, Norair ext. 2328, 714-689-3247.	
For Sale or Trade	
T-Bird, 1960, full power, air, \$500 or trade or pickup of equal value. 213-329-5310. M	
Lot, lge., level, at Wofford Hgts., Calif., 1/4 mile from Lake Isabella, paved rd., water & elec. avail., \$4,500 or trade for property in Hawthorne-South Bay area. 213-679-8054.	
Falcon, 1962, \$200 or trade for trail bike or makings of VW dune buggy or conversion for outpane operation of truck. 714-827-3469. M	
Pickup, 1956 Ford, 3-spd. o/drive, \$500 or trade for late model 250 cc street & dirt motorcycle. 213-422-4329.	
Chevrolet, 1956, 1962 283 cu. in., 3-spd. Hurst, \$300 or trade for motorcycle. 213-371-4168.	
Garage Door hardware, o/head type, \$10 or trade for erector set. 213-597-5232.	



COMPARING the golf balls they used for their individual holes-in-one are E. L. McCarty, left, and Norio Mitsuoka.

Holes-In-One Carded by McCarty and Mitsuoka

Two members of the Electro-Mechanical Division scored holes-in-one recently.

First to make the most difficult shot in golf was E.L. "Bud" McCarty, Configuration Control, who made his hole-in-one at the Riverwood Golf Course, Santa Ana.

Bud used a number three wood on the 205-yard, par three hole. His drive struck 15 feet short of the green and took one bounce. It went onto the green and rolled to hit the pin dead center.

Playing in his foursome at the time were fellow members of the Electro-Mechanical Division, Ed Jezowski and Al Zurbruegg, and former Northrop employee, Bob Greene.

This is Bud's first hole-in-one during the six years he has been playing golf, but he came close two weeks earlier. On the number two hole, same course, his initial drive hit the edge of the cup and then veered.

The second hole-in-one was shot by Norio Mitsuoka, Engineering, at the Green River Golf Course, near Corona. He made the shot with a number four iron on the 140-yard, par three eighteenth hole.

He did not see the ball hit the green and roll into the cup. He

Joe Ferm Gives Tips for Survival In Desert Area

Joe Ferm, former Electro-Mechanical Division engineer, returned to give the NRC Desert Rats Club some tips on desert survival based upon experiences from his worldwide travel.

Mr. Ferm displayed various types of survival gear such as lightweight packs, dried foods, a tiny Swedish stove, and some innovations of his own.

Extensive travel in China and Sweden gave Mr. Ferm firsthand knowledge of survival under extreme climatic conditions. In the mid-1930's he traveled across Russia to the Shantung Province of China where he lived until the war drove him and his missionary parents out of the country.

In 1948, he came back to his native Los Angeles. After a tour in the Army he worked with Northrop navigation programs until he left to form his own company.

In addition to his former travels, Mr. Ferm also described his extensive exploration of desert and mountain areas of Southern California.

Marines Promote Meers to Colonel In Corps Reserve

Frank J. Meers, supervisor of Technical Documentation in Automation Systems Engineering, Anaheim, was recently promoted to colonel in the U.S. Marine Corps Reserve.

Mr. Meers, a 13-year Anaheim employee, was an enlisted infantryman with the Marine Corps in the Bougainville and Guam campaigns of World War II. He was commissioned in 1945 and released from active duty the next year.

Mr. Meers was recalled to active duty in 1950 and sent to Korea where he was infantry platoon and company commander for 11 months. He took part in the Chosin Reservoir campaign when the Red Chinese entered the war.

Since his release from active duty in 1952, Mr. Meers has kept active in the Marine Corps Reserve. He holds the Bronze Star and Purple Heart medals.

Colonel Meers' active duty assignment this year will be two weeks in the Senior Reserve Officers Course, Naval War College, Newport, Rhode Island.

DIVISIONS SLATE JOINT TOURNAMENT

Golfers from the Electro-Mechanical and Electronics Divisions will have their first joint tournament. It will be held at the San Jacinto Country Club, Palm Springs, on June 7, according to George Baldwin, Electro-Mechanical Division NRC golf commissioner.

The tournament will begin at 8 a.m. and there is room for 20 foursomes, Mr. Baldwin said. Deadline for entries is May 28.

The \$7 entry fee includes the green fees, prize money, and use of electric carts.

thought that he had completely overshot the hole.

He was playing with fellow Northrop employees Joe Bush, Bob Benedict and Dick Wimmermark. While he tried to find his ball, Mr. Bush suggested that it might be in the cup.

"Impossible," he replied and kept looking.

Joe Bush had to take the ball out of the cup before he would believe it!

CHANGES

(Continued from page 1)

Schappaugh, supervisor.

The ASMS Project Engineering group is redesignated ASMS Project group, N. S. Bishop, acting chief. In this group the Systems Engineering and Design unit becomes Systems Engineering, J. A. Gunderson, project engineer; and the Test and Evaluation unit is redesignated Systems Design, A. D. Nelson, acting project engineer.



GIANT RATTLER, killed by Electro-Mechanical Maintenance crew at the Riverside remote test site, is inspected by Betty Schulz, Maintenance department. Due to the remoteness of the area, snakes are occasionally encountered. This is the largest one they have yet found. It measured five-and-a-half feet in length and seven-and-a-half inches around the thickest part of the body.



PRESENTING GRADUATION certificates to students of the Electro-Mechanical Division Work Simplification course is Bob Barry, Industrial Relations, foreground. Students are front row from left, Charles Williams, Walter Brown, and Ellis Robinson. Center, Lacey Husted, Wilson Walker, and James Alexander. Back row, Leonard Jackson, Stan Hoinski, class instructor, and Don Hudson.

Employee Uses His Free Time to Judge Parades

Terry Certain is Northrop's champion parade attender. He averages 43 a year.

They range from small municipal affairs to some of the country's biggest like the All Western Band Review that draws 70 marching units and the spectacular Hollywood Santa Claus Lane Parade.

Fullerton Honors Jim Birdsall for Volunteer Work

Jim Birdsall, Management Systems, Anaheim, was named volunteer of the month by the Fullerton Volunteer Bureau.

The Northrop employee was honored for his community service in teaching a one-hour science class each month at the Fullerton Youth Science Center and also for volunteer tutoring a high school student who is a slow learner.

The science center class is for 15 students of junior high age. "It is an 'awareness' class," Jim explained. "Students can see different things in science through films and lectures."

The tutoring was arranged through the Placentia Boys Club. Jim helps him with problems in math and science as well as on the young man's personal problems.

"I'm surprised," Jim said, "how helping him in math has helped me to understand some of the concepts I missed in first year algebra."

Gem, Mineral Club Finds Bacon Agate

The Electro-Mechanical Division NRC Gem and Mineral Club brought back 500 pounds of bacon agate from their last field trip to the San Bernardino Mountains near Bagdad, California, according to Gaylord Miller, commissioner.

The club is now planning its next outing to the Himalaya Mine in search of tourmaline, a more precious stone that comes in red, white, green and black.

Call Mr. Miller at ext. 587, Anaheim, for details.

The large number he attends—is partly because he loves parades, but it is also because he is a member of the Southern California School Band and Orchestra Association. The group, composed primarily of men with high degrees in music who are working with musical groups in public schools, was formed in 1958. The group's purpose is to insure that students in local school systems get a fair evaluation of their work in the musical programs.

They do this by conducting their own judging of band, marching and musical groups, junior and senior high schools and colleges participating in Southern California parades. The judging is based upon musicianship, showmanship, marching and maneuvering and inspection. They are not concerned with floats, but only with bands and drill teams.

"Their inspections are tougher than any we used to have in the Marine Corps," Mr. Certain said. "I've seen the youngsters come out with plastic bags over their shoes to keep them spotless until the inspector arrives. Competition is so tough even that can make a difference."

When not working with band judging, Terry helps train drum majors. Five of his trainees have won state championships.

Terry, now a production engineering coordinator at Northrop Electro-Mechanical Division's Page Court facility, has been working with music and musicians since he was an eleven-year-old member of the Los Angeles Junior Philharmonic Orchestra.



HUP TWO, HUP TWO — Terry Certain is barely visible at left as he conducts the activities as a parade judge.

NORTHROP NEWS

ELECTRO-MECHANICAL DIVISION EDITION

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Wave Form Analyzer Displayed

A unique Wave Form Analyzer, developed by the Automation Systems section, Electro-Mechanical Division, will be shown at the Los Angeles Product Licensing Show on May 21, according to Art DeBolt, supervisor of the Development Engineering unit of the R&D group.

Development was done by the research team of Stan Oster, Lyle Rennick, Don Nutten and Bob Werth. It is used to measure the electronic characteristics of radar impulses in radar electronic countermeasures and computers.

"The Northrop-developed Wave Form Analyzer is unique in that it requires no operator, setup or adjustment of controls," Mr. DeBolt said. "Similar equipment available in commercial models have from 15 to 20 controls which an operator must adjust to obtain measurements."

The analyzer was developed by Automation Systems for application to special U.S. Navy requirements, but because of its simplicity and low cost, it has excellent commercial applications, Mr. DeBolt added.

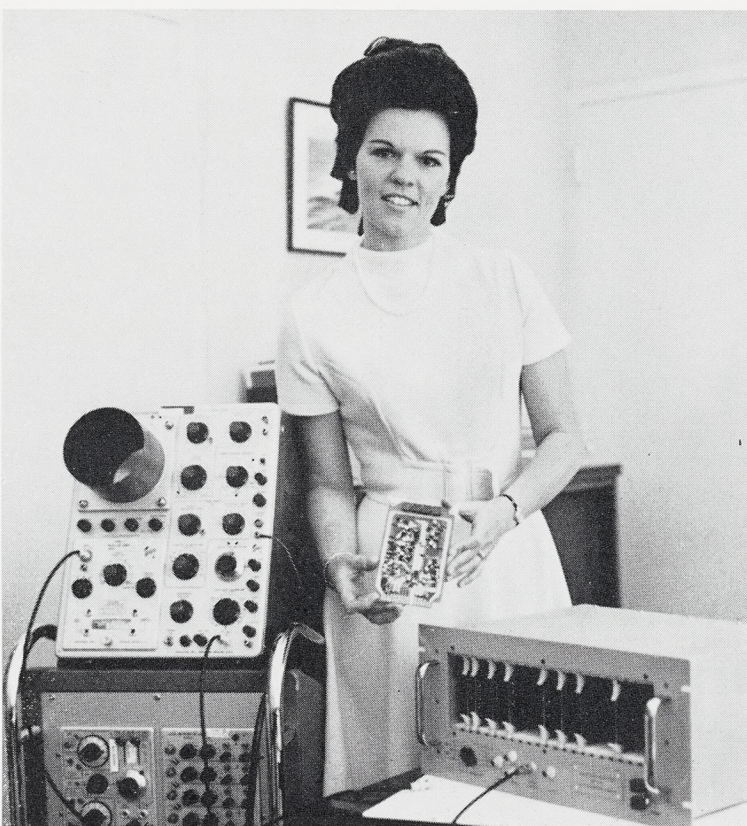
AMBULANCE NOW SERVES DIVISION

An emergency vehicle has been added to the dispensary at the Northrop Electro-Mechanical Division as a cooperative venture between Employee Relations and Industrial Security.

A van has been leased and completely equipped with resuscitator, inhalator, stretcher, and a complete medical kit.

The ambulance, driven by Plant Protection personnel supplemented by members of the Emergency Crew, will be used for transporting industrial nurses to and from plant emergencies.

"Since the ambulance is equipped for complete service, it will provide a real improvement in response time," Gene T. Jessick, chief, Industrial Security, said.



JOYCE HATFIELD demonstrates the unique Wave Form Analyzer developed by the Automation Systems section. The analyzer will be shown at the Los Angeles Product Licensing Show on May 21.

Guzinski Is Month's Top Suggestion Award Winner

Top suggestion for April at the Northrop Electro-Mechanical Division was submitted by Chet Guzinski, Machine shop, according to Larry King, Suggestion Award administrator.

Mr. Guzinski's suggestion eliminated difficulty caused by tools that provided little chip clearance. He proposed use of a different drill with a pilot turned to the diameter of the pilot hole and inserted in a positive micro stop. This eliminated many of the chip problems, resulting in a 33 per cent production increase and a reduction in reject and rework requirements. Mr. Guzinski received a suggestion award of \$163.

William L. Moore, Mechanical Assembly and Test, made a suggestion that permitted 38 skin sections marked for scrap disposal to be modified with a filler

strip to meet specifications in drawings for new skins. All 38 skins are now ready for use. Mr. Moore received a \$96 suggestion award.

Clyde E. Bartlett, Mechanical Assembly and Test, offered a suggestion that resulted in significant saving in elevon production. He

(See Photo, Page 6)

suggested installation of permanent thermocouples in the elevon curing fixtures. This reduced calibration time and frequent replacements. His idea received a \$57 suggestion award.

Bert L. Hammett, Manufacturing Engineering group, received a \$30 suggestion award for his idea for a special thread gauge

(See SUGGESTIONS, page 6)

QUARTERS GO TO ALERT READERS

Four people are a quarter richer just for making a phone call to the Training office, according to Richard Greene, training administrator.

Standard training notices were posted in Y-1, Y-3 and Y-12, stating that a phone call would be rewarded and the following sharp-eyed employees took action: S. Maruko, Y6782, Leon Turner, Y4433, Earl Chambers, Y6701 and Fran Brown, Y6543.

This small reward system is part of a plan implemented several weeks ago to increase employee's interest in training and to encourage training activities.

According to Mr. Greene, another similar announcement will be posted within the next six months and this time the reward will be one dollar.

"Do you read the training announcements?" he asks.

Division Assists Drive Aiding Unemployed

Electro-Mechanical Division will play a major role in the National Alliance of Businessmen's drive to provide 1,500 jobs for hard core unemployed persons in Orange County.

Frank Lynch, vice president and division general manager, is a member of the local NAB Advisory Council. Martin A. Severson, assistant to the general manager, and Dick Stuffer, chief, Personnel and Administration, are acting as campaign managers for pledges in District 2, Orange County. Their goal is to secure pledges for 500 permanent hard core jobs and 500 summer hire jobs for underprivileged youths.

Teamwork

The two Northrop campaign managers have designated 10 team captains who will contact businessmen in this area to explain the program and to receive pledges.

The program is a nationwide movement and a partnership between private industry and the U.S. Government to provide jobs for people previously considered unemployable.

"We are not asking employers to create make-work jobs," Mr. Severson said. "We are seeking meaningful employment in unfilled positions. The jobs must be open and with opportunity for advancement. The dual goal in Orange County is to find 1,400 permanent basic hard core jobs by June 30, 1970, and 1,500 summer hire jobs for disadvantaged youths. Our District 2 quota is about one third of this total. District 2 includes the cities of Anaheim, Orange and Villa Park.

"Companies will be asked to make job pledges to hire, train, and retain the disadvantaged unemployed in order to remove them from welfare rolls and to make them productive citizens," Mr. Severson added.

The program is intended to assist those lacking job skills, work experience, education or social acceptance. To participate in the basic job program the employee must be a member of a

family receiving welfare payments or whose net income is below a living standard. He must also possess one or more of these characteristics: be a high school dropout, be under 22 or over 45, handicapped or subject to special obstacles to employment.

The youth summer hire portion of the program is for young disadvantaged students who need summer jobs in order to be able to return to school in the fall.

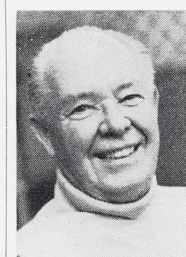
In addition to working with the council and pledge committees, Northrop will also pledge a quota of jobs under both phases of the program, Mr. Severson said.

County chairman for the program is S. F. Eyestone, president, North American Rockwell's Autonetics Division.

Two Complete Twenty-five years Work at Northrop

Two Electro-Mechanical Division veterans are completing 25 years service with Northrop.

The quarter century veterans are Theodore H. Herzog and Donald Woodward.



Mr. Herzog



Mr. Woodward

Mr. Herzog joined Northrop in May 1944, working first with metal drawings for the B-35 at Hawthorne. He continued to work with the Aircraft Division for the next 16 years. He worked with the Body group on the B-35 fuselage, in Armament Engineering, and then in Liaison with the McDonnell F-4 and F-101.

In 1960 he came to Anaheim (See VETERANS, page 6)



INSPECTING THE INTERIOR of the new emergency vehicle at the Electro-Mechanical Division, Anaheim, are from left, "Peck" Campbell, Industrial Security; Renee Morrison, industrial nurse; and John Burke, Industrial Security.



THE JOKE WAS ON Beth Harris, left, and Lydia Araujo, when they tried to persuade Gene Jessick, chief, Industrial Security, to take a U.S. Savings Bond. He is not only already buying bonds but also is the Electro-Mechanical Division Bond Drive coordinator. But then the joke was on him after all for the persuasive young ladies talked him into signing up for an increase. The 1969 Savings Bond Drive starts May 23. See story, page 2.



PARIS-BOUND—The Northrop RF-5, reconnaissance version of the tactical F-5 fighter, will be displayed for the first time at the Paris

Air Show next week. Note camera "windows" in nose section.

Northrop Plans to Display Recon Version Of F-5 Tactical Fighter at Paris Air Show

The armed reconnaissance version of the F-5 tactical fighter, the RF-5, will be exhibited by Northrop at the Paris Air Show in Le Bourget, France, May 29 to June 8.

Appearing at Paris for the first time, the cannon-equipped supersonic aircraft can take sharply detailed pictures from tree-top level to 30,000 feet.

The RF-5 is similar to the F-5 in service or ordered for the air

forces of 16 allied nations. The special reconnaissance nose, however, contains four 70 millimeter cameras.

On a tactical mission the RF-5 can deliver 6,200 pounds of air-to-air and air-to-ground weapons, photograph the results and repel

attackers with its cannons.

The high-speed, low-altitude agility enables the aircraft to avoid radar-controlled anti-aircraft weapons which threaten high-altitude picture-taking planes. Its firepower can fight off attacking planes.

'Highest Elevators' In The World Will Aid Boeing 747 Stewardesses

Stewardesses flying on the new Boeing 747 jetliner will ride the highest elevator in the world.

The elevator systems, first built for an aircraft, will link lower deck galley areas with passenger decks.

One of the elevators, designed and built by Garrett AiResearch, Los Angeles, will be installed in Section 46 of the fuselage, one of the three sections being built for the Boeing aircraft by Northrop.

The elevators will transport personnel, food and beverage carts, in flight, from lower lobe galley areas to service centers on the upper passenger deck. The trip from deck to deck is 80 inches and will take eight seconds.

Several airlines have ordered 747's that will link lower deck galley areas and passenger decks by the elevator system. Each air-

craft will have four elevators—two forward and two aft. Each elevator set consists of a personnel car adjoining a separate car for service carts. All are independently operated.

'Secretary of The Year' Honor To Mrs. Newman

Juanita Newman, secretary to W. A. Boggess, director of Northrop's Florida District office, has been named 1969 Secretary of the Year by the Ft. Walton (Florida) Chapter, National Secretaries Association (International).

Mrs. Newman competed with the entire chapter membership for the honors with final selection by three judges. Point value was assigned to such topics as club activities and a composition prepared by the candidate's employer regarding her secretarial skills.

As chairman of the chapter's Secretaries Week observance, Mrs. Newman was temporarily floored to learn she was the honoree. She quickly gained her composure and presented the head table centerpiece to the Secretary of the Year—herself.

ARCHERY CLUB

Members of the NRC Archery Club will hold their monthly meeting at 7:30 p.m., May 27, in the NRC Clubhouse, to discuss proposed bylaws and outline National Archery Association qualifications.

**IS IT NEWS?
CALL EXT. 4273
HAWTHORNE**

U.S. Savings Bonds Campaign Kickoff Set

Northrop's 1969 U.S. Savings Bonds Booster Campaign kicks off Friday with the hope that Northrop personnel will maintain their high level of support which last year found the employees nationally ranked among the top 13 companies in the nation.

"Our objective is for Northrop personnel to maintain that level," said Marvin Beyrodt, Community Relations, U.S. Savings Bonds Program coordinator. Over 86 per cent of the employees participated last year to rank with two other companies in a tie for eleventh in the nation.

Several employees throughout the company are assuming key roles in coordinating the drive through May 29. They are:

John Chambers, Norair; Deane Haddon, Northrop Corporate Laboratories; Jack Theibert, Northrop Ventura; Harry Clark, Electronics; Gene Jessick, Electro-Mechanical; Bill Hayman, Northrop Data Processing; and Sandra Tapper, Corporate office.

Each of these people will have department clerks or secretaries responsible for the actual solicitation of persons not currently taking part in the program.

While the main focus of the Booster Campaign is in urging non-participants to sign up for the U.S. Savings Bonds payroll deduction plan, participating personnel are also encouraged to increase their weekly investment.

Employees who wish to enroll or increase their allotment for bonds should contact their departmental clerk or Personnel office.

"The participant's signature is required before the payroll deduction can take effect," Mr. Beyrodt noted.

RETIREES TO HEAR TALK ON APOLLO

More than 100 members of the Northrop Retirement Club are expected to gather today for the third annual Reunion Dinner and meeting at the Alondra Club, Lawndale.

Social hour begins at 3 p.m. with dinner to be served at 6 p.m.

Harry Claggett of Northrop's Brown and Root/Northrop operations at NASA's Manned Spacecraft Center, Houston, will discuss the Apollo program.

NORTHROP NEWSMAKERS

J. E. Seymour, Norair, has written a paper titled "Design and Manufacture of a 747 Body Structure Using Structural Adhesives" for presentation before the Society of Aerospace Materials and Process Engineers.

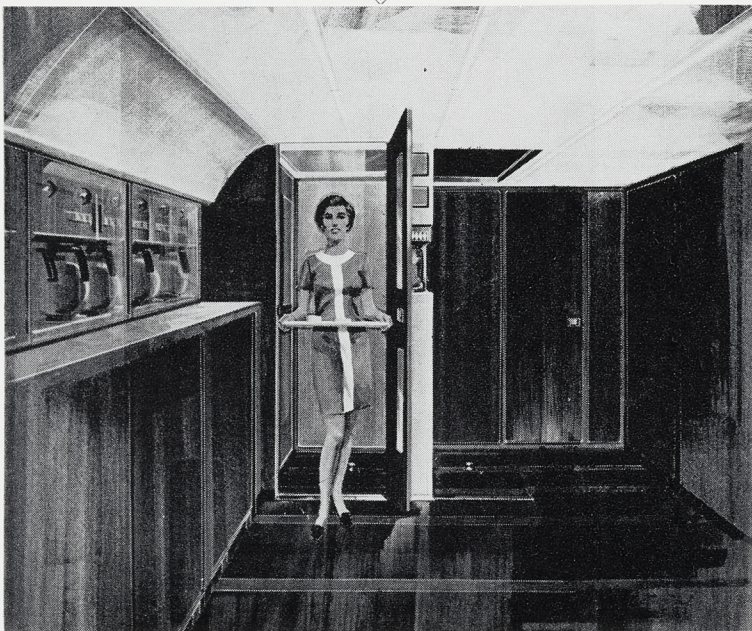
Paul Von Essen, Norair, has participated in a panel discussion on "Ten Essential Steps to Contractual Value Engineering" at the National Conference of the Society of American Value Engineers in San Diego.

R. E. Herfert, G. A. Blake and R. R. Rosas of Norair, have teamed to prepare a paper titled "The Use of Scanning Electron

Fractography in the Evaluation of Metallic and Non-metallic Matrix Composites" for presentation at the joint north-south meeting of the California Societies for Electron Microscopy at San Francisco.

Albert N. Siggson, Norair, has written a chapter titled "What is a Standards Engineer?" for a text on Assembly Engineering to be published by Hitchcock Publishing Company.

John B. Sinacori, Norair, has written an article on "Validation of Ground Based Simulation" for use in the Journal of the American Helicopter Society.

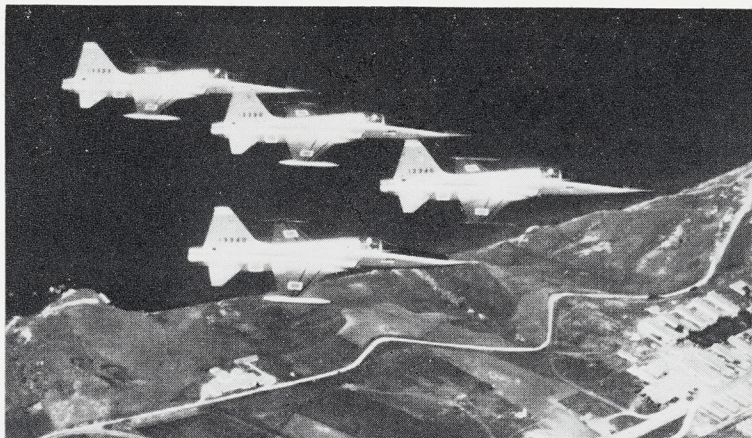


ARTIST'S CONCEPTION shows Boeing 747 stewardess stepping from "world's highest elevator." One will be installed in fuselage section built by Norair. Photo courtesy of Garrett AiResearch.



JUANITA NEWMAN of Northrop's Florida District office receives plaudits as 1969 Secretary of the Year of the Ft. Walton Beach Chapter, National Secretaries Association, from her boss, W. A. Boggess.

Aircraft Spare Parts Supply Is Complex Job



NORTHROP-BUILT F-5's streak across the sky in formation at Erdek, Turkey, above, while, at right, Norair Logistics section analyzes spare parts requirements and prepares recommending documentation to insure there will be an adequate supply of spare parts to keep the F-5 flying on its worldwide mission.



The Northrop F-5 and T-38 are among the world's most reliable and easily maintained aircraft, but they could not remain operable without spare parts. Both must perform under a variety of conditions, particularly the F-5 which operates in 16 nations around the globe.

The task of assuring spare parts support is complex and requires efficient cooperation of many organizations.

The Air Force Logistics Command (AFLC) is directly responsible for spare parts supply support. Management duties for F-5 and T-38 support systems are assigned to Systems Support Management at AFLC's San Antonio, Texas, Air Materiel Area (SAAMA). Assisting SAAMA to determine and provide spare parts is Northrop Aircraft Division's Logistics section.

The Field Service and Training section facilitates the supply of spare parts to the customer's using activities, anticipating and preventing supply problems.

Helping Field Service to perform its duties is one of the responsibilities of Product Support's technical representatives, who are stationed at various bases in the U.S. and in user nations.

All of these operations are in turn backed by the resources and contributions of many other Aircraft Division organizations.

The selection of spare parts requirements is not a simple task. Merely to stockpile gross quantities of every replaceable part would be prohibitively expensive and wasteful. The Logistics section, in coordination with SAAMA, must assure spare parts support that is economic, adequate and timely.

To do this, it is necessary to know the operational environment in which the aircraft will be deployed, the specific mission profile, the maintenance concept for each using nation, and the programmed flying hours.

Many Things Are Considered

Coupled with this information, other factors such as scheduled maintenance, usage and consumption experience, predicted failure modes, and repair level decisions form the basis for specific spare parts recommendations and eventual procurement for warehousing and supply.

In developing spare parts recommendations, the Logistics section coordinates work with other Aircraft Division organizations such as Technical Program Management and Project Management, Maintainability, Reliability and Quality Control, to name but a few. The cooperative contributions of Manufacturing Materiel, and many other Norair organizations are required in the procurement, manufacture, delivery, and control of spare parts requirements.

Spare parts required for the airplane range from small details to large complex assemblies. Many assemblies that are replaceable on the airplane are economically repairable and require spare parts for their repair and overhaul.

Spare parts are also required for the aerospace ground equipment associated with the weapon system, and for equipment used on training programs.

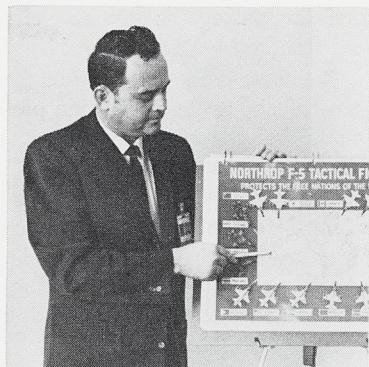
Specific types and levels of packaging and preservation are necessary for the shipment and storage of spare parts. Effective control techniques must be applied to assure that deliveries are scheduled and made in accordance with need dates, to ascertain that requirements are maintained to design changes, and to certify that the parts are shipped to proper destinations. These destinations include various Air Force bases and Air Materiel areas in the United States and F-5 tactical fighter user nations throughout the Free World.

Close Ties

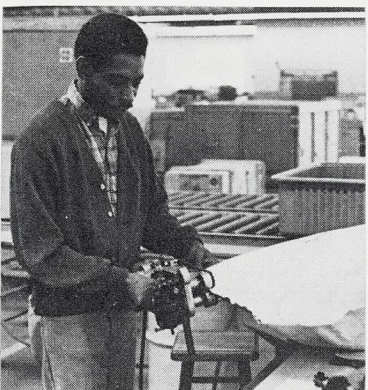
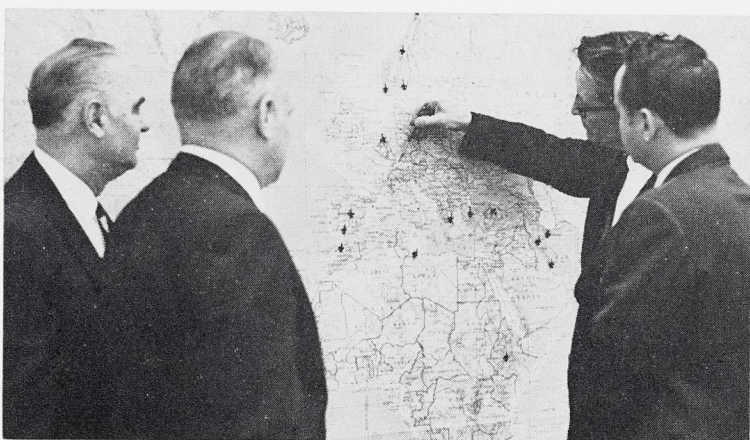
"The amount of coordination involved in a successful spare parts provisioning program is extensive," R. C. Young, director, Logistics section, said. "We have for many years achieved a fine record in this field through teamwork. That includes not only the coordinate efforts of organizations in the Northrop Aircraft Division, but also the splendid cooperation of our Air Force Plant Representative office, the Aeronautical Systems Division, and many other Air Force activities in addition to SAAMA, of course."



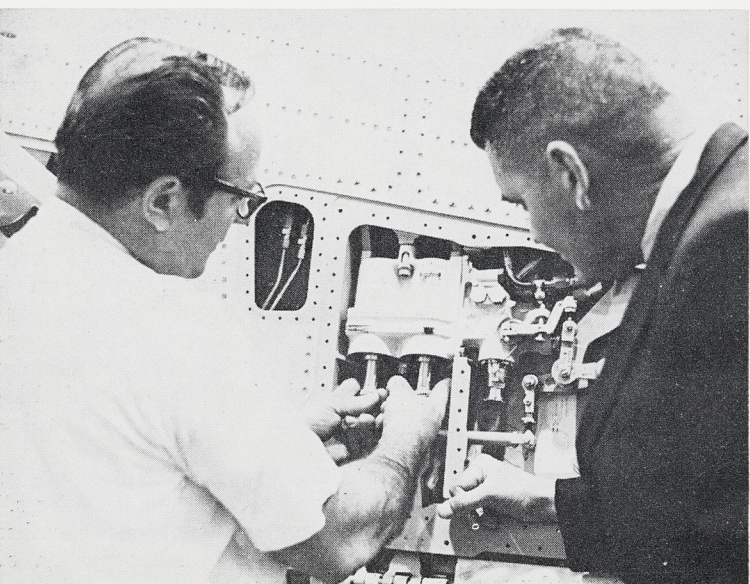
HAL SHANNON, left, Logistics Provisioning, develops plan and schedule for logistics support of the F-5A-21 Category Test Program. At right, Jack Nation identifies Southeast Asian areas where special advance operations require close attention to assure spare parts support.



ED WEST, CONFIGURATION CONTROL, left, indicates the West German site of spare parts stocked for emergency repair of aircraft delivered to NATO user nations. Jack Nation, supervisor, Logistics Provisioning, verifies location, while John Homberg, Maintainability and Operations Planning, and Charles Bernhardt, Reliability and Safety, concur. At right, Pat Peterka uses data recorder.



GRANVILLE BROOKS, left, packaging technician, applies waterproof packaging to a part before shipment. At right, Hazel Williams, left, displays soft consumables packaged for shipment with spare parts kits, while Chuck English, senior packaging engineer, discusses item with Loretta Pickerell, Quality Control.

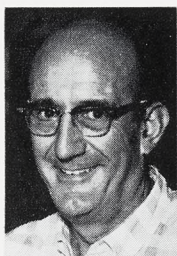


DEMONSTRATING how easily the aileron actuator installs on an F-5 is R. G. Fletcher, left, Center Fuselage branch general foreman. Watching is B. D. Marshall. Aircraft maintainability aided by spare parts when needed, contribute to the high operational readiness of the F-5 and T-38 aircraft. Right, a USAF senior master sergeant oversees work of Republic of Korea AF mechanics who check fuel linkage of an F-5.



WHAT DO YOU THINK?

How Do Your Favorite TV Programs Compare With The National Ratings



Mr. Minoletti

Paul Minoletti, foreman, Palmdale Night Operations, Norair:

I can't really say because I watch television during the day. However, on Sunday nights, I always watch Walt Disney's Wonderful World of Color. I especially like the show's films on nature.

Opal Stafford, 747 assembler, Ventura:

I don't know how it stands in the ratings but Perry Mason is first with me. I'd never miss it. It may be in re-runs now but I watch it every time.



Miss Stafford



Janice Terrebrood, Accounts Payable, Electro-Mechanical:

I agree with them on Laugh In, but it is the only one. I like everything on this program, but it is the only thing on the air that I like these days.

Mrs. Terrebrood

Steve Finnegan, Security representative, Electronics:

I don't watch television enough to have a favorite program. However, if I'm home and have the time, I will watch Family Affair. It's a good family program and usually has a good moral to each story.



Mr. Finnegan



Clara Adams, secretary, Night Operations, Norair:

I don't watch television at all. I work second shift and don't get much time to see the shows. Since I don't get home until close to 1 a.m., most of the good shows have long since gone off the air.

Mrs. Adams

Leroy Anderson, Data Processing, Electro-Mechanical:

I don't agree with the ratings. I think TV ratings are dropping because of the excessive use of immorality on so many so-called "nice" shows. Many parents feel that their children are exposed to too much violence. TV should be just like the movies and rated for "adults only."



Mr. Anderson



W. J. Bryan, Reproduction, Ventura:

That's difficult to answer because I don't have a favorite program. Live dramas and documentaries, the things I do enjoy on television, rarely make the ratings . . . well, sometimes the documentaries do and they rate well.

Mr. Bryan

Dell Wyatt, personnel clerk, Electronics:

I don't have a favorite television show, but I do watch Laugh In now and then. I think it is a real relaxing show and certainly very funny.



Mrs. Wyatt

NORTHROP THEATRE PARTY SET JUNE 29

A Northrop-wide theatre party to view "Krakatoa, East of Java" has been set for 5 p.m. June 29 at the Pacific Cinerama Dome Theatre, Hollywood.

Northrop ticket outlets are now offering regular \$3 loge reserved seats for \$2.40 each and \$2.50 orchestra seats for \$2.

An all-star cast is featured.

WATCHDOG TO HOBBY

Jack Lean's Doberman Wins Trophies

Jack Lean thought he was only getting a puppy companion for his son and a watchdog when he got his first Doberman pinscher, but he also got a new avocation that fills his free time and takes him and his family all over the American Southwest.

During the week, Jack is an operations and systems analyst in the Automation Systems section, Electro-Mechanical Division. Here he analyzes the military worth and the effectiveness impact on Navy equipment of the integration of Northrop's automatic monitoring systems, such as TEAMS, into existing and new ship construction.

During the evenings Mr. Lean grooms and trains his dogs for dog shows on the weekends. He and his family travel as far as San Francisco or Tucson, Arizona, to exhibit their dogs.

"The most gratifying thing for a breeder is to see qualities develop that were scientifically researched to improve the heredity qualities passed on by the sire and the dam," Mr. Lean said.

The most common question he is asked about the Doberman pinschers is, "Aren't they vicious? Won't they turn on you?"

Mr. Lean replies that the Doberman is not naturally a vicious or mean dog. Mr. Lean says he has never known a more loving, intelligent or elegant breed of dog than the Doberman.

The tangible evidence support-

ing the quality of Mr. Lean's dogs are the six "Best of Breed" trophies, two "Best Opposite Sex," and three "Reserve Winner" trophies that command a special spot on his mantle.

His trophies have come from such widely separated shows as La Palma Park, Santa Ana, San Diego, Santa Maria, Carmel, Lancaster, Tucson, San Fernando all-breed and specialty dog shows.



JACK LEAN shows his Doberman pinscher at a recent show. At left is judge Ben Brown. Photo courtesy of Henry C. Schley.

David Moses to Join Cast Of New Television Show

David Moses, outside vendor coordinator at Northrop's Mari-pasa facility, will be a member of the regular cast of the new TV show "New People" premiering in September.

Mr. Moses, a graduate of the American Academy of Dramatic Arts, New York, has appeared previously on the stage and in TV. His most recent TV appearance was as a neophyte burglar reformed on the "Julia" show by star Diahann Carroll. He also had a part in the new Raquel Welch movie, "Flare-Up" which will be released soon.

Mr. Moses' interest in acting was inspired first by his mother, who was an ardent movie fan. His next inspiration was Marlon Brando, now a personal friend, whom he considers the best actor in the world. Another inspiration was Sidney Poitier whom he met backstage in New York.

"I was still a drama student then," David recalls. "Sidney looked me dead in the eye and said, 'Why do you want to be an actor?'"

"There are so many things I want to say," I replied. "The stage can be my pulpit."

"Sidney smiled and said, 'I hope we can work together sometime.'"

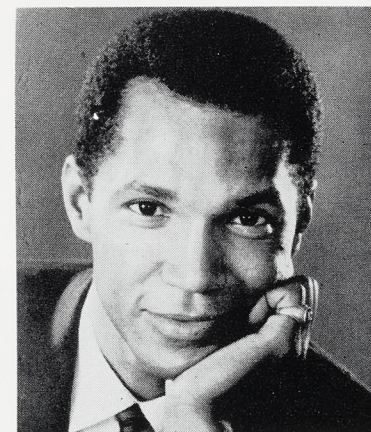
While Brando and Poitier were the models he used to guide himself as an actor, the great creative influence of his life has been the novelist James Baldwin. Baldwin was also instrumental in leading him to his present break in TV. The novelist introduced him to Diahann Carroll who invited him to audition for a part in her TV show.

A report of his performance reached Danny Thomas' organization before the film was shown. They called him at 11 one night to come for an audition. He was told that they had tested every qualified actor they could find for the part in the pilot film for "New People."

He tried out and was accepted.

The pilot film was a success, found a sponsor and will begin as a regular program. He plays one of four young people, all of differing political beliefs who go to a remote Pacific island to make a brave new world.

Mr. Moses came to work at Northrop in 1965 after finishing a tour as a sergeant in an Army Nike Hercules battalion. He participated as Northrop's representative in the Vice President's



David Moses

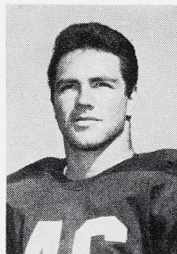
Task Force on Youth Motivation and received a certificate of appreciation for his work in visiting different high schools to persuade students to finish their education.

Mr. Moses is married. He and his wife, Sharon, have three children, LaMont 4, Erik 3, and Jason 2.

NSIA PROGRAM

Richard Horner, senior vice president-Technical and H. W. Jones, Norair supervisor of Technical Information, were participants in a two-day National Security Industrial Association program exploring "barriers" to the flow of scientific and technical information this month in Los Angeles.

Mr. Horner spoke on "Costs of Obtaining Government Business." Mr. Jones was a panel member on the User Change portion of the program.



Charlie Evans

Evans' Son Wins Big on Game Show

Charlie Evans, son of Mrs. Byrda Evans, C-5 Ground Support equipment assembler, won prizes totaling \$6,800 on the Hollywood Squares Game Show, televised weekdays over NBC.

Charlie, 21, is a junior at the University of Southern California. This fall he may become the starting fullback on the USC Trojan football team. He was introduced on the show by O. J. Simpson, USC's star football player for the past two years and winner of the Heisman Trophy.

Among the prizes Charlie won are an auto air conditioner, stereo, color television, vacation for two in Hawaii, carpeting, refrigerator/freezer, mink cape, portable bar, washer and dryer, slide projector, den furniture, vacuum cleaner and \$400 cash.

Charlie gave the refrigerator/freezer to his mother and the carpeting to his grandmother. He used part of the cash prize to buy a set of golf clubs.

Charlie, who stands 6 feet 2 inches and weighs 225 pounds, was graduated from Gardena High School in 1965. In his senior year he was named to the All-American high school football team.

After completing his studies at USC he hopes to play professional football.

Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

Mustang, 1966 fastback GT, auto., p/s, d/brakes, hi-performance eng., \$1,600. 213-391-9425. A

Ford, 1965 Galaxie XL, 4-spd., \$1,150. 213-329-4224. A

Pontiac, 1966 GTO, many fact. access., custom 4-track stereo tape, \$2,195. 805-947-8587. A

Corvette, 1958, 283 eng., auto., \$775. 213-395-8844. A

Austin Healey, 1961, wire whls., r/h, \$700. 213-327-8828. A

Corvette, 1967 427, convt., many extras, \$3,550. 213-363-3843. A

MGB, 1966 convt., o/drive, rack, radio, \$1,475. 213-645-4163. A

Ambassador, 1965 990H, a/c, p/s, p/b, radio, auto. trans., console, 270 h.p., \$1,250. 714-544-7349. A

Station Wagon, 1960 Ford, V-8, auto., r/h, \$150. 805-644-4192. A

Alfa Romeo, 1967 Duetto roadster, radio, \$2,695. 213-376-9915. A

Oldsmobile 88, 1958, radio, p/s, p/b, auto. trans., \$125. 213-370-3821. A

Volkswagen, 1967 Westphalia camper, pop-up top tent, radio, \$25. 213-676-2813. A

Chevrolet, 1961 Bel Air, a/c, auto., r/h, \$535. 213-674-6409. A

Corvette, 1965 fastback, 4-spd., 365 h.p., 327 cu. in., AM-FM, wood steer. whl., 4-11 posi., \$2,500. 213-325-2541. A

Corvette, 1968 h/top, 427 eng., p/w, AM-FM radio, posi., 4-spd., \$4,100. 213-335-6915. A

Station Wagon, 1968 Chevrolet Caprice, 3-seat, p/s, p/b, a/c, 327 eng., fact. warranty, \$3,100. 213-676-2597. A

Station Wagon, Rambler, 1962, 6-cyl., r/h, std. trans., \$300. 714-523-5315. A

Station Wagon, 1965 Chevrolet Impala, a/c, \$1,300. 213-379-8090. A

Chevrolet, 1962 Biscayne, 4-dr., 6-cyl., stick shift, \$250. 714-534-3585. A

Station Wagon, 1963 Chevy II Nova, std. shift, limited slip differential, \$750. 714-639-4438. A

Ford, 1962 Falcon, b/seats, \$200. 714-870-0546. A

Scout, 1963, long cab 80-4x2, twin 11-gal. gas tank, hvy. duty o/springs, trailer hitch, other extras, \$550. 213-831-3594. A

Volkswagen, 1968, auto., fact. warranty, \$1,750. 213-835-6492. A

LeMans, 1967 convt., p/s, r/h, \$1,950. 213-870-9688. A

Chevrolet, 1955, 3-spd. stick, \$330. 213-374-4944. A

Rambler, 1962 Classic, 6 cyl., std. trans., r/h, \$250. 213-675-7732. A

T-Bird, 1961, full power, a/c, \$395. 213-833-0742. A

MGB, 1963, \$950. 213-677-2881. A

Station Wagon, 1956 Ford, 2-dr., V-8, auto. trans., r/h, \$200. 213-645-6268. A

Station Wagon, 1964 Chev. Bel Air, r/h, p/s, p/b, fact. air, \$1,435. 714-537-3211. A

Station Wagon, 1964 Ford Fairlane 500, V-8, r/h, auto. trans., p/s, many extras, \$825. 213-344-8896. A

Pickup Truck, 1963 Chevy, bit. up to ¾ ton, V-8, stick shift, rebilt. eng., equipped for camper, \$975. 213-645-7215. A

DeSoto, 1959, 4-dr., p/b, p/s, \$185. 714-638-9576. A

Jeep, 1968 CJ5, V-6 eng., metal top, roll & tow bars, r/h, many extras, \$2,700. 805-498-6463. A

Dodge, 1963 Dart, convt., 6-cyl., \$500. 213-676-2615. A

Dodge, 1964 Polara convt., b/seats, console, r/h, \$795. 213-473-1568. A

Dodge, 1957 h/top, full power, auto. trans., big eng., \$550. 213-591-6759. A

Volkswagen, 1967 fastback, 17,000 mi., AM-FM, extras, \$1,650. 213-323-8089. A

Station Wagon, 1959 Ford Country Sedan, 4-dr., p/s, p/b, r/h, \$175. 213-632-2642. A

Chrysler, 1967 New Yorker, 4-dr., air, full power, \$3,150. 213-324-1012. A

Chevelle, 1968 Malibu 396, 375 h.p., 4-spd., Amer. mags, Firestone Indy tires, many extras, \$3,500. 213-325-6890. A

MGB-GT, 1968, chrome wire wheels, \$2,900. Box 901. A

Chevrolet, 1961 Impala, 4-dr., p/s, p/b, r/h, fact. air, V-8, auto., \$700. 213-322-3311. A

Volkswagen, 1969, w/sunroof, AM-FM auto. & portable radio, \$1,925. 213-390-2958. A

Caprice, 1966 custom cpe., 2-dr. a/c, auto., 49,000 mi., \$1,381.25 C.U. loan, submit name, orgn., ext., bid amount in sealed bid, \$1,625. Credit Union ext. 1117. A

Station Wagon, 1964 Buick LeSabre, all power, a/c, \$950. 213-644-8385. A

Chevy II, 1966 Nova, air, auto., V-8, \$1,495. 213-872-2020. A

Automobiles For Sale

Dune Buggy, 1958 VW, rebilt., 10" rims & tires, \$550. 213-375-4558. A

Volkswagen, 1965, radio & sunroof, \$1,000. 213-644-7578. A

Dodge, 1958, 2-dr., r/h, p/s, \$200. 714-897-6927. A

Buick, 1965 Riviera, full power, a/c, \$2,000. 213-370-2991. A

Mustang, 1966 GT, h/top, 4-spd. trans., r/h, power d/brakes, many extras, \$1,600. 213-675-2514. A

Household Items For Sale

Sofa, 8' brown, w/6 reversible cushions, modern style, \$30. 213-379-2751. B

Dinette Set, red mahogany Duncan Phyfe style, buffet, 6 chairs, \$125. 213-328-2932. B

Table, distressed knotty pine, 2" thick, 48" round, 2 leaves, 3 chairs & 1 captain's chair, \$200. 714-772-2673. B

Washer, 1 yr. old, green, RCA, w/elec. dryer, \$175. 213-675-9433. B

Mattress, crib size, never used, \$6. 213-635-7942. B

Bar Stools, 2, gold, white metal frame, \$25. 213-372-2602. B

Adjust-A-Bed, king size, \$325. 213-352-3818. B

Washer, & elec. dryer, Lady Kenmore, turquoise, 1 yr. old, \$300. 213-379-1708. B

Bedroom Set, blonde, incl. dble. bed, h/board, box spring & mattress, 2 night stands & dresser, \$60. 213-370-7756. B

Freezer, Coldspot, 17 cu. ft. chest w/fast freezer, 3 yrs. old, \$150. 213-323-6366. B

Sewing Machine, Kenmore Deluxe, portable, all attachments, 2 yrs. old, \$100. 714-870-1998. B

Breakfast Nook, w/out table, \$22. 213-677-9016. B

Beds, 2 Beauty Rest, twin, incl. mahogany legs, mattress & box springs, \$25 set or \$45. 213-832-3502. B

Coffee Table, 2 end tables, Mersman matched set, walnut, \$35. 213-379-0375. B

High Chair, Cosco, chrome, \$14. 213-324-4817. B

Crib, mattress & lge. dresser, \$40. 213-326-8455. B

Den Furniture, Chromecraft Commander, \$400. 213-324-1251. B

Rug, 8' circular, Starburst, blue-green, 100% nylon pile, \$50. 213-833-5594. B

Washer, General Electric, white, \$50. 213-371-1367. B

Chairs, 2 reclining-types, \$120. 213-671-0925. B

Dinette Set, blonde, table & 5 chairs, \$25. 213-633-2395. B

Bathinette & high chair, Cosco, \$15. 213-679-8426. B

Range, 4-burner, gas, grill & timer, \$40. Box 902. B

Refrigerator, coppertone, 14 cu. ft., bottom freezer sec., w/ice maker, 2 yrs. old, left-hand dr., \$200. 213-325-3694. B

Coffee Table, maple, w/2 matching step-end tables, \$10 ea. 213-323-5931. B

Crib, mattress, folding wicker dressing table, white, 2 yrs. old, \$30. 714-537-5088. B

Miscellaneous For Sale

Accordion, 120 bass, made in Italy, Ambassador, \$75. 213-329-5069. C

Parakeet Cage, 13"x10" w/5"7" brass stand, access., \$6. 213-378-0477. C

Trailer Hitch, EZ-Lift, detachable head w/hitch ball, instructions incl., \$60. 213-675-3515. C

Trail Bike, Suzuki 80, completely rebilt., \$200. 805-498-4721. C

Surfboard, Mobley Pintal V, \$75. 213-374-8608. C

Surfboard, 9' Vardy, natural fibreglass finish, \$35. 213-374-3359. C

Frequency Synthesizer, 0.3-26MHz in steps of 10 Hz Navy mod. 0-275/SRT, \$100. 213-421-0405. C

Cabin Cruiser, 24', new eng., \$1,275. 213-531-9026. C

Outboard Motor, 50 h.p. Merc., prop, controls, bat. harness, \$395. 213-371-5373. C

Scuba equipment, 72 cu. ft. tank w/booth & harness, single hose reg., \$75. 213-534-5954. C

Tent Camper, Nimrod, dble. bed, 7'x14' setup, \$300. 714-530-2271. C

Golf Clubs, 1966 Wilson Staff woods, 1, 3, 4, D-5 swing wt., stiff shaft, 43", \$35. 213-675-1365. C

Home, 3-bdrm., & den, 1½ baths, f/place, cpts., 16 x 36 heated pool, 15 min. from Northrop, \$27,500. 213-324-3410. C

Bowling Ball, 16 lb. Manhattan, carrying case, \$15. 213-752-6379. C

Engine, complete 265 Chev., \$25, other misc. parts. 714-827-3701. C

Boat, 16' Cabin Performer, twin Mercury engs., trailer, \$800. 213-672-4572. C

TV, 19" General Electric, w/stand, \$35. 213-823-1579. C

Sailing Dinghy, Stan Miller, 8', many extras, \$100. 213-437-7927. C

Tent Trailer/Camper, split-level, stove, floor htr., 2 folding tables, bunk beds, \$275. 213-371-5072. C

Clarinet, wood, \$60. 213-327-9203. C

Pup, 10 mos. old, female, Afghan, black mask silver, \$225. 213-531-7202. C

Motorcycle, Hondas, his & hers, 1968 S90 & 50cc, \$450. 213-323-4745. C

House, 2-bdrm., enc. park-like yard, near Hawthorne High, \$21,500. 213-375-5009. C

Saddle, Western Equitation, Circle Y brand, used 6 mos., \$400. 213-675-6750. C

Miscellaneous For Sale

Table Saw, 8" Dido, \$70. 714-962-8983. C

Mobile Home, 1965 kit Stateliner, 10'x55' w/expando living room, \$4,200. 714-839-3058. C

Home, 5-bdrm., refrig a/c, 3-car gar., undgd. util., 600 sq. ft. brick & redwd. patio, landscaped, Agoura, near Northrop Ventura, \$36,500. 213-889-8075. C

TV, 21" Motorola console, color, 2 yrs. old, \$270. 213-676-3628. C

Lawnmower, Sears, power, reel-type, \$30. 213-941-6953. C

Home, 3-bdrm., f/place, dble. gar., cement patio, blockwall, new dps., cpts., forced air furnace, \$25,900. 213-324-8747. C

Rings, wedding & engagement, \$150. 213-674-5424. C

House, 3-bdrm., family rm., cpts., dps., f/place, 1½ baths, pool, 15 min. to Electro-Mech., Anaheim, \$32,500. 714-529-6934. C

Headlamps, chrome, for Model A Ford, \$12.50. 213-644-2154. C

Tape Recorder, Panasonic RQ-500, all transistor, 3¼ & 1½ spds., \$25. 213-675-4121. C

Trail Bike, 1968 Powell, 5 h.p., \$190. 213-676-8892. C

Wiglet, extra long human hair, brown, \$20. 213-320-6685. C

Slide Rule, Pickett 10" electronic, \$15. 213-329-5310. C

Motorcycle, 1965 Honda, 305 Super Hawk, \$295. 213-370-0250. C

Tires, 2 Cassler Scrambler slicks, 9:00-15, \$25. 213-641-1249. C

Windshield, tinted, & 2 door windows on 1957 Chev., \$15. 213-754-3665. C

House, 3-bdrm. or 2-bdrm. & den, dps., cpts., f/place, 1½ baths, dble. det. gar., large yard, G.I. loan at 5¼%, Hawthorne area, \$27,000. 213-675-7009. C

Seats, for VW, \$15. 213-329-5934. C

Motorcycle, 1969 Wards Riverside, 350cc, \$450. 213-863-9492. C

Speaker Enclosures, 2, hi-fi, 15" Karlson type, \$10 ea. 213-371-1949. C

Pool Table, Brunswick, 1" slate, 6 pockets w/ball return & 14 cues, balls & racks, \$500. 213-752-7995. C

Triplex, 2-bdrm., h/wood floors, disposals, carport, laundry rm., Lynwood area, \$30,000. 213-537-3098. C

Surfboard, 8'4", lightweight fiberglass, \$40. 213-430-1245. C

Acreage, 2½ acres, near Grants Pass, Ore., 2-bdrm., 1½ bath, all elec. home, 9 yrs. old, 20'x40' shop, \$28,000. 213-676-4833. C

Typewriter Stand, metal, \$7. 213-327-2939. C

Motorcycle, 1968 Honda, 350 cc, 2,000 miles, \$500. 805-947-8771. C

Pool Table, 7' slate, 1 yr. old, will deliver, \$395. 213-677-8802. C

Houses, 2 1-bdrm., on C-2 lot, \$12,000. 213-379-4517. C

Lot, 25'x80', level, on hilltop, all util. in, close to Arrowbear Lake, \$2,500. 714-892-9318. C

Acreage, 5-acre parcels, Antelope Valley, easy terms, \$1,800 acre. 714-968-2780. C

Turntable, Bogen Presto BGI, 6¼ lbs., platter, 4-spds., Pickering 380C cartridge, \$35. 805-497-1925. C

Home, 3-bdrm., 1 bath, Morningside Park area, \$2,500 dn., assume G.I. loan of 5¼% int., \$22,800. 213-755-3676. C

Motorcycle, 1966 BSA Victor, setup for dirt, lights, 2 sets fenders, \$500. 213-371-1746. C

Camper, 8' telescopic, butane stove & refrig., sleeps 2, \$800. 213-633-3853. C

Pup, Norwegian Elkhound, male, 10 mos. old, AKC, \$100. 213-378-4422. C

Boat, 18' Cruizon inbd., 292 cu. in. Ford motor, uphol. seats, clear glass deck, exc. whl. steel trailer, \$995. 213-327-3160. C

Surfboard, 9'10" Vardeman, \$40. 213-372-8618. C

Car Cooler, evaporator-type, 12V., mounts on trans. hump, \$15. 213-321-1655. C

Motorcycle, 1968 Triumph, 650 cc, extras, \$900. 213-379-4895. C

Acreage, 2½ acres, Antelope Valley, \$29 dn., \$29 mo., no int., \$2,900. 213-378-1026. C

Radio, Zenith Transoceanic, portable, AM-FM-SW, w/2 antennas, \$125. 213-545-6719. C

Motorcycle, 1967 Suzuki Scrambler, 250cc, X-6, \$450. 213-375-0061. C

Shoe Skates, white, size 8, \$5. 213-345-3195. C

Bumper, front, for 1956 Chev., good chrome, \$15. 213-326-8033. C

Ping Pong Table, ½" top, \$15. 213-534-1028. C

Boat, 16' runabout, 75 h.p. Scott outbd. & trailer, \$1,000. 213-644-2112. C

House, 3-bdrm., family rm., 1½ baths, f/place, Hollypark, 5 min. to Norair, \$25,500. 213-757-2641. C

Rooftop Carrier, Stoway, vinyl-coated twill cover, for VW, \$20. 213-672-9428. C

Home, 2-bdrm., 2 baths, in Westchester, enc. yard, new cpts., f/a heat, \$29,900. 213-670-5793. C

Surfboard, 9'3" Dave Sweet, \$35. 213-833-4191. C

Mini Bike, \$100. 805-880-4493. C

TV, color, 25" Zenith console, \$250. 213-329-1843. C

House, 3-bdrm., 2 baths, R-3 zone, 105 x 120 lot, Lomita, So. of 101 Hwy., terms, \$29,950. 213-377-1074. C

Heads, for Ford #289, \$30. 213-679-9648. C

Skis, 5'10", safety bindings & poles, \$25. 213-671-6692. C

Postiche, black European human hair, 3-oz., approx. 10" long, \$10. Box 903. C

Miscellaneous For Sale

Surfboard, 10'3" Gregg Noll, \$85. 213-371-7150. C

Wedding Gown, size 10, \$25. 213-754-5358. C

Camera, Konica, 35mm, f2.8 lens, \$35. 213-638-6238. C

House, 3-bdrm., 1¼ baths, bitins, cpts., Victoria Knolls, \$27,500. Box 904. C

Horse, small pinto gelding, \$175. 213-324-1949. C

Acreage, 7½ acres, improved, 2 wells, running creek, 5,000 gal. storage tank, south on Hwy R-3, Hemet, \$20,000. Box 905. C

Trailer, 16' Santa Fe, customized, cabana, many extras, \$745. 213-375-7265. C

Trailer, 15', water tank, or water hookup, butane gas stove & light, \$495. 213-376-9965. C

Sailboat, 8' Sabot, fiberglass, \$175. 213-545-3415. C

Hurst Kit, Mystery Shifter, for Chev., \$15. 714-838-7161. C

Camper, 8' Parkway, complete w/elec. water pump, \$700. 213-866-2785. C

Ice Skates, Planert custom-made, \$25. 213-326-0279. C

Pistol, .38 cal. semi-auto., \$45. 213-962-2867. C

Acreage, 28.7 acres, So. Ore., w/5-rm. house, 2-car gar., barn, fruit trees, on U.S. 199, 10 mi. north of Calif. border, \$28,500. 213-371-6735. C

Motorcycle, 1968 Honda CL 350 Scrambler, \$600. 213-322-5410. C

Wanted to Buy

Used Brick, will take apart & clean for the brick, \$13-881-3650. D

Amplifier, for bass guitar & guitar. 213-679-5704. D

Buick Riviera, 1966 or '67, fully equipped in good condition. 213-537-4620. D

Volkswagen, bus, 1960-63. 213-673-0645. D

Backpacking equipment. 714-962-1143. D

Tape Recorder, Concertone 505 Reverse-a-matic, 1953 make, in excellent condition, pay \$160. 213-327-0342. D

Seats, 2 front, any type, for Econoline. 213-327-5376. D

Power Edger, gas or elec., good condition. 213-327-9804. D

For Trade

Pistol, new Browning hi-power auto. 9 mm, trade for best deer rifle & scope offered, prefer 30-06 or .270 or German Luger in excellent condition. 213-672-4957. E

Free (To Be Given Away)

Pups, 2, 4 mos. old, half cocker spaniel & terrier, female. 213-676-8833. F

Rentals Offered

Cabin, Green Valley Lake, avail. early June & Aug., \$55 wk. 213-320-2002. G

House, 3-bdrm., 2 baths in Torrance, patio, lge. gar., close to shopping & schools, \$170. 213-925-7760. G

Share, 2-bdrm. apt., pool, all utils. paid, close to Norair Hawthorne, \$58.50 mo. 213-676-1950 before 3 p.m. G

Apt, 2-bdrm., unfurn., cpts., dps., bitins, pool, adults, no pets, \$130 & up. 213-326-9572. G

Camping Trailer, 15', sleeps 4, \$35 wk. 213-347-6133. G

Cottage, Ocean Bch., San Diego near Mission Bay, \$70 wk., reserve now. 714-826-2007. G

Cabin, in Big Bear, sleeps 6, f/place, gas heat, \$50 wk.; \$25 w/end. 714-525-5250. G

Apt, 1-bdrm., f/place, d/washer, many deluxe extras, Westwood area, \$180. mo. 213-479-3147. G

Cabin, Big Bear City, make reservations now, sleeps 9, avail. w/ends, wk. or monthly, \$15 day. 213-334-1084. G

Rides and Riders

Rides Wanted

8 a.m. — 4:45 p.m.

Palos Verdes Peninsula Center, Hawthorne Blvd., San Nicholas, P.V. Peninsula. George H. Bischoff, Norair ext. 2754, 213-377-8518.

Lakewood Blvd. & Imperial Hwy., Downey. Morris Brown, Norair ext. 4487, 213-861-8508.

Sepulveda & Imperial, El Segundo. Beverly Brumley, Norair ext. 1018, 213-322-4810.

Rides Offered

8 a.m. — 4:45 p.m.

Palos Verdes Peninsula Center, Hawthorne Blvd., San Nicholas, P.V. Peninsula. George H. Bischoff, Norair ext. 2754, 213-377-8518.

Rentals Offered

Apt, bitins, cpts., dps., all elec., d/washers, patio, closed gar., bach. furn. \$135; 2 bdrm. unfurn., \$185. 213-372-2222. G

Apt, Redondo Bch., near ocean, cpts., dps., bitins, refrig., gar. w/storage cabinets, 1-bdrm., \$135; 3-bdrm., 2 baths, \$192. 213-372-8835. G

Cabin, Big Bear Lake, \$30 w/end. 213-867-0662. G

Apt, 2-bdrm., furn., washer, dryer, cpts., dps., gar., near Northrop, \$170 mo. 213-833-2512. G

Cabins, Idyllwild, 1 & 2 bdrms., stream, patio, f/place, \$20-\$35 w/end; \$50-\$80 wk. 213-754-5288. G

Cabin, Lake Arrowhead, no. shore, 200 ft. from lake, \$120 wk. 213-375-2255. G

Rentals Wanted

Single, mature woman wants 1 or 2-bdrm. upstairs apt., unfurn., within 2 blocks of "5" bus line, no gar. needed. 213-675-3130.

Home, 2 or 3-bdrm., in So. Bay area, \$150-\$175 mo. rent or lease w/option to buy. 213-542-2307. H

Child Care

Child Care offered, my home, fenced yd., So. Redondo Beach, close to schools. 213-375-4376. I

Personals

I wish to thank all my friends & co-workers for my retirement party & gifts. It has been a great pleasure knowing you & working with you. AGNES HENKEN. L

Please accept our sincere thanks for the gifts & well wishes from my many friends at Northrop. WALTER & LOUISE STARLING. L

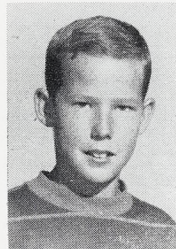
To all my friends at Northrop, thank you so much for everything you did to make my retirement such a wonderful event. BILL STOUT. L

I wish to thank all my friends at Palos Verdes for the kind expressions of sympathy on the passing of my mother. RUTH MYERS. L

I wish to express my sincere appreciation for the sympathy & kindness

Henkes' Son, 12, Honored For Saving Mother, Child

Thomas "Pat" Henkes, son of Claude Henkes, Army Ordnance Receiving and Fabrication, Page Court, was awarded the Orange Empire Area Council, Boy Scouts of America, Certificate of Commendation for saving his mother and a nine-year-old girl from possible drowning.



Thomas Henkes

According to the citation, Mrs. Henkes—who was just learning to swim—was in the water when a nine-year-old girl jumped in the pool beside her. The child was a non-swimmer. When she found herself in over her head, she panicked and grabbed Mrs. Henkes. Both went under.

Thirteen-year-old Pat was standing beside the Olympic-size pool. He dove into the water and swam to their assistance. After pulling the girl from her grip on his mother, he towed her to the side of the pool. Then he returned to assist Mrs. Henkes.

Both had swallowed much water and were gasping for breath.

"Pat could have been in trouble had he not had the Boy Scout life saving instruction," the citation said. "We feel that his quick action averted a tragedy."

According to Mr. Henkes, Pat has been swimming since before he could walk. "During the war, I saw a number of people die because they couldn't swim. That impressed me and I got my children in the water as quickly as I could," he said.

Pat developed swiftly. At ten he was competing with high school boys in swimming meets. He earned his Scouting merit badge in swimming and when he was 12 earned the special Mile Swim award, making the feat more difficult by swimming in the ocean. He is also a member of the Order of the Arrow.

Pat was recommended for the council certificate by Dr. A. R. West, chairman of Explorer Post 51 and it was presented in recognition "of his meritorious action demonstrating Scout training, Scout character, and Scout ideals."

VETERANS

(Continued from page 1)

to work with Logistics. His first job here was development of the Polaris worldwide inventory. He is now located in the Polaris Support Depot as a logistics representative in coordination with the Contracts department.

The second Electro-Mechanical Division employee reaching 25 years service in May is Donald E. Woodward, specialist in Production Assembly.

Mr. Woodward came to Northrop in May 1944 as a field service mechanic specializing in radar with the Flight Operations section at Hawthorne. Later he went to Palmdale to work with the F-89 tests. When these tests ended he returned to Hawthorne to work in Electronics until moving to Anaheim in 1964. He has been with Production since that time.

Off duty, Mr. Woodward follows spectator sports, especially baseball, and is an avid book collector. He is especially interested in books dealing with history.

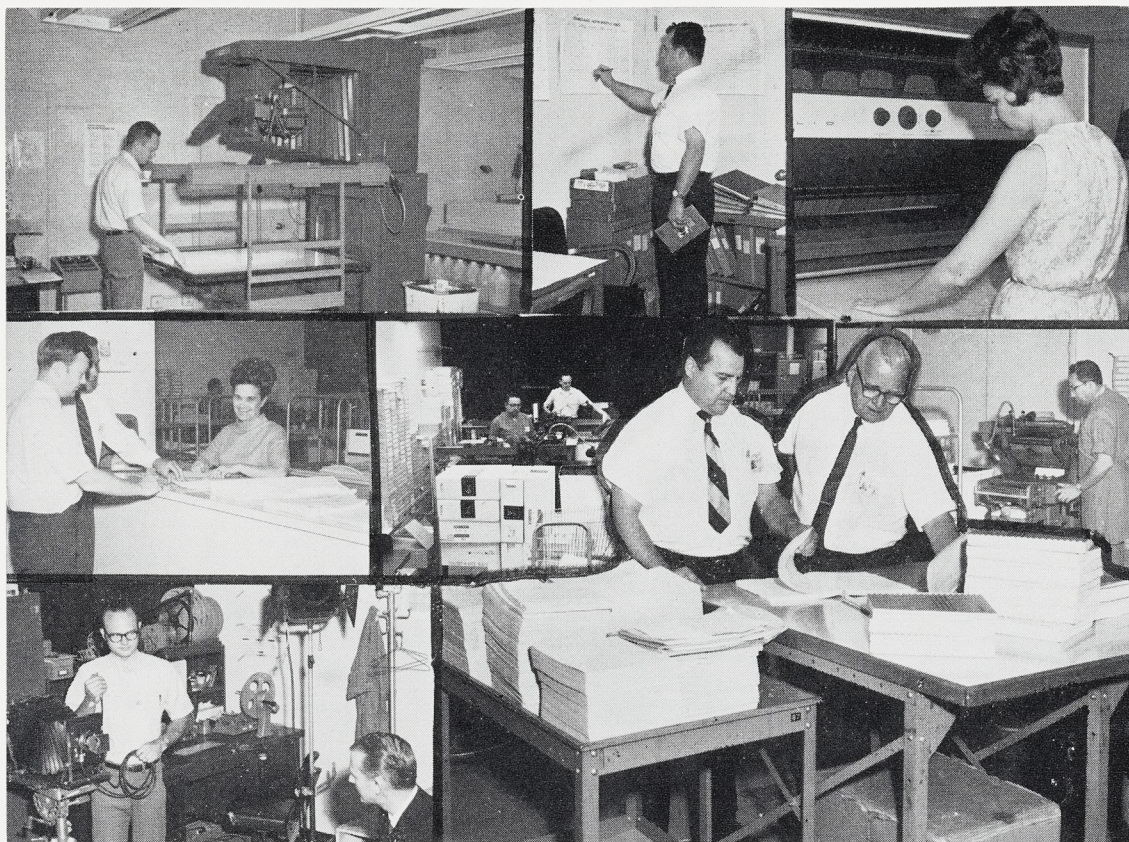
Twilight Tennis Group Resumes Evening Games

The Northrop Electro-Mechanical Division NRC Tennis Club is reforming the twilight tennis group that was so popular last year, according to Jack Flannagan, club commissioner.

"Last year about this time we met once a week after work at Fullerton Junior College for an hour's playing," Mr. Flannagan said. "It was a good workout for those who wanted to learn and those who wanted to keep in practice. The meetings were so popular that we are resuming them this month."

In addition to the twilight matches, the club also has its Saturday tennis matches which begin at 8:30 a.m. at California State College of Fullerton.

"Northrop personnel or their families interested in joining us on Saturday or at twilight are urged to contact me," Mr. Flannagan said. Call him at Anaheim ext. 1229.



KEEPING ESSENTIAL REPRODUCTION flowing are from top left, Norman Baker at process camera, Gus Grijalva scheduling work, Letha Ladd operating Ozalid machine. Second row, Jane Robertson serves customers, Frank Algarin and Norman Baker operate presses,

and at right, Frank Algarin at press. Bottom Ron Grishaber at the camera with Wally Brown, and at right Gus Grijalva and Harvey Noxheim check quality of printing in an important contract proposal. Photos by Ron Grishaber.

Reproduction/Photo Services Has Essential Company Support Role

An essential partner in all phases of work at the Electro-Mechanical Division is the Reproduction/Photo Services unit which is involved in all company contracts from inception to termination.

Proposals, reports, shop orders, engineering drawings and all types of written communications essential to company operations come

to the unit for reproduction, according to Harvey Noxheim, unit supervisor.

"In one year the average reproduction workload, handled by 23 people on two shifts, totals four-and-a-quarter million square feet of Blue Line engineering drawings, two-and-a-quarter million Xerox copies, and eight-and-a-quarter million copies made by offset printing," Mr. Noxheim said.

Other Tasks

This is in addition to the unit's photography responsibility. More than a quarter million feet of 16mm motion picture film is shot for test photography, primarily at off-site locations. Personnel also handle still film requirements which are processed in the in-plant lab.

This heavy workload is complicated by short deadline requirements.

PLANS MADE TO FORM SAILING CLUB

Plans are under way to organize an NRC Electro-Mechanical Division Sailing Club. A committee of three, composed of Carole Dinnen, Lee Hausman, and Herb Turner, have held an organization meeting to determine interest in forming the club.

Fifteen prospective members attended the first organization meeting and the list of interested Electro-Mechanical sailors has now grown to twenty-five.

Full Program

Purpose of the club, according to Miss Dinnen, is to get together for recreational sailing in small craft. The organizers hope to draw interest from both experienced sailors and novices. A program of lectures and films as well as personal instruction is planned. They hope that this will include both practical training in handling boats, instruction in theory and careful drilling in the rules of the road.

Anyone interested should contact one of the committee for information.

"Every user of reproduction services can contribute substantially in helping meet these critical due dates by carefully evaluating his individual needs and specifying realistic due dates on essential work requests," Mr. Noxheim said.

In addition to work in the main reproduction plant and the three satellite stations, about \$150,000 in printing work is contracted to outside vendors.

"However, proprietary and security considerations make it desirable to do much of our work in-plant," Mr. Noxheim said.

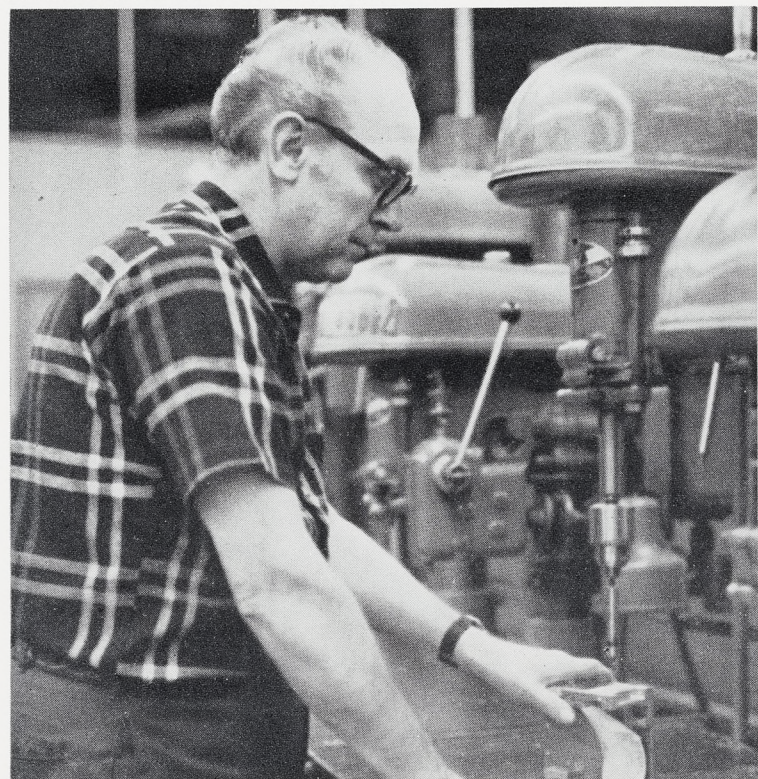
College Students To Be Guests on Secretary Day

Two secretarial students from Cerritos College are scheduled to visit the Northrop Electro-Mechanical Division as part of the Sixth Annual Technical-Administrative Secretary Day in Industry, according to Carole Dinnen, secretary to Frank Lynch, vice president and division general manager.

Firsthand

"The visitors will talk to secretaries in the division's major working areas," Miss Dinnen said. "The program calls for them to visit our Technical areas, Marketing, Procurement, Industrial Engineering, Industrial Relations, Security and Personnel. We feel that the students are not here to watch typing or filing. They get that in school."

"They will see what it is like in actual working situations requiring a broad base of experience," she added. "In addition to passing along helpful hints and things the young ladies will not learn from textbooks, we hope to provide them insight into the different kinds of secretarial positions. This could be especially helpful in planning their future careers."



CHET GUZINSKI demonstrates the idea that brought him the top suggestion award for April.

SUGGESTIONS

(Continued from page 1)

which aided in meeting Mark 7 delivery dates.

J. A. Kimmons, Organization 6374, and R. J. Fore, jointly proposed a special sheet metal paint mask to eliminate the need for masking tape when painting fins. The mask clips to the fins and eliminates masking time. The two suggesters shared jointly in the \$28 suggestion award.

Bob Criss proposed increasing the depth of the piston caps on the F-5 and T-38 diverter valves in order to permit interchangeability.

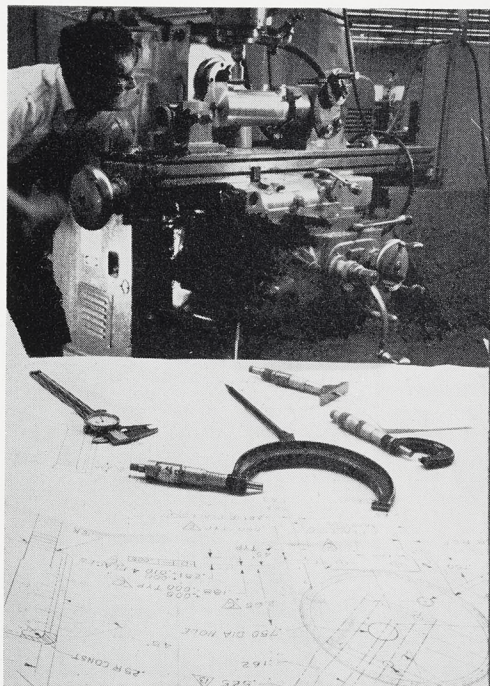
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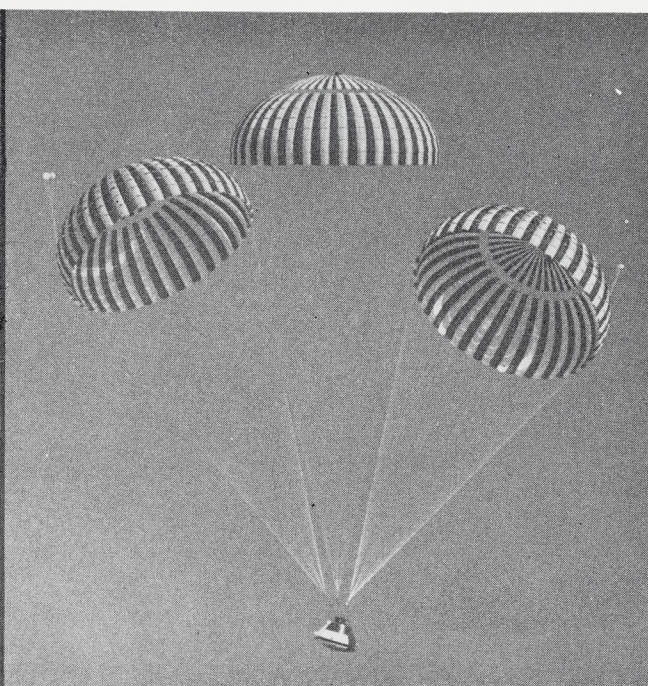
Published biweekly by Northrop Corporation, Beverly Hills, California

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June 4, 1969



BIG RESPONSIBILITY—From development (with Ron Harrison working on the sequence controller on a lathe) to the finished product, right, Northrop Ventura's Landing System has



performed perfectly in all 20 U.S. manned space flights. Next month it will land the Apollo 11 moon flight crew.

Moon Flight: Northrop To Play A Bigger Role

Next stop in the U.S. space program is the moon. And while Northrop won't be on the lunar surface next month, Northrop products and technical skills will:

—Land the command module back on earth.

—House the astronauts for a special quarantine period.

—Contribute to the extensive tracking of the recordbreaking flight.

Certainly the best-known Northrop product in the space program is the Northrop Ventura-built Landing System. Ventura has developed and produced the parachute systems for all U.S. manned space flights.

Apollo 11's last stop on its history making journey will be the Brown and Root-Northrop-built Lunar Receiving Laboratory in Houston. There the crew, spacecraft and lunar samples will undergo quarantine and testing for a two-week period to prevent the release of possible harmful organisms on earth. After the quarantine period is over, scientists throughout the world will receive lunar samples for detailed investigation. The LRL will also serve as a distribution point for all samples brought back to earth in future Apollo flights.

Tracking Apollo 11 from launch through splashdown July

24 will be three major Northrop products.

The Electronics Division's Precision Products Department produces accelerometers (precision motion-sensing devices), the Astrodynamics section at the Electro-Mechanical Division's Huntsville, Alabama, facility will provide real-time trajectory analysis support and the Airborne Lightweight Optical Tracking System (ALOTS) will track the craft at low earth altitudes.

When Astronauts Neil Armstrong and Edwin Aldrin, Jr., land on the moon and then return with Astronaut Michael Collins in the command module, Northrop will be part of the team.

Quarter Century Honors Given to Norair Veterans

Seventeen veteran Northrop employees who joined the company in the early months of 1944 got together for a while last month at a luncheon planned in their honor.

Highlighting the affair was the presentation of individual Northrop 25-year service pins by the host, F.W. Lloyd, vice president and Norair general manager.

Mr. Lloyd, also a wearer of a Northrop 25-year pin, chatted informally with the honorees. He talked of Northrop as it was in 1944, as it has been in the ensuing years, and its prospects for the future. He praised the men and women for their long years of service and asked for their continued help in making and guiding the destinies of the division.

Receiving service emblems were: Simeon C. Jackson, Frank D. Mathes, Thomas H. Spence,

(See VETERANS, page 8)

OV5-9 Satellite Working 'Perfectly' After Launch

The OV5-9 satellite, launched into orbit May 23 aboard an Air Force Titan III-C space booster, is working "perfectly," according to Bunky Ayers, program manager.

The satellite was built by the Electronics Division for the Air Force Office of Aerospace Research. It is designed to measure energetic particles emitted by the sun during solar flares.

"Solar flares are eruptions from the sun's surface which, along with other effects, increase radiation in space," said Mr. Ayers.

In addition, the satellite will obtain data concerning protons and electrons inside and outside the earth's magnetic range and will measure cosmic rays, X-rays, magnetic fields and electric fields.

Mission requirements call for the satellite to collect and transmit data for approximately 18 months.

Power for the electronic equip-

ment is supplied from eight body-mounted triangular solar panels consisting of 1,272 solar cells which provide 17 watts.

Ventura's Mark 30 Training Target Enters Sea Trials

The Mark 30 underwater target, developed and built by Northrop Ventura, is now undergoing sea trials at the Naval Torpedo Station, Keyport, Washington.

Two of the Mobile Anti-Submarine Warfare Targets (MASWT) have been built for the Keyport tests, which include approximately 25 design verifications and 15 performance evaluation runs in the Puget Sound waters.

Earlier tests at Keyport, which were highly successful, used a dynamic test vehicle to evaluate components and subsystems. The current series will check out the full system, including supporting equipment, and simulate operational missions.

The Mark 30 is designed for use as an anti-submarine warfare training target.

SAVINGS BOND CAMPAIGN ENDS

The all-Northrop U.S. Savings Bonds Booster Campaign for 1969 concluded last week and tabulation of results is now in progress.

Over 85 per cent of Northrop employees participated in the Savings Bonds Program last year, ranking Northrop among the top firms in the nation in this respect.

During the campaign just ended, non-participating employees were given an opportunity to join, while those currently buying bonds were given an option of increasing their allotments for bonds.

Sub Rescue Mountings Under Study

Electro-Mechanical Division's Ocean Systems section sent two men to the San Francisco Naval Shipyard, Mare Island, soon after the launching of the SSN666 Hawkbill to study the installation mountings for the Deep Submergence Rescue System equipment.

The two men are Lowell Eason, project engineer on the Mother Submarine Rescue System Manual, and Lew Shortridge, senior artist.

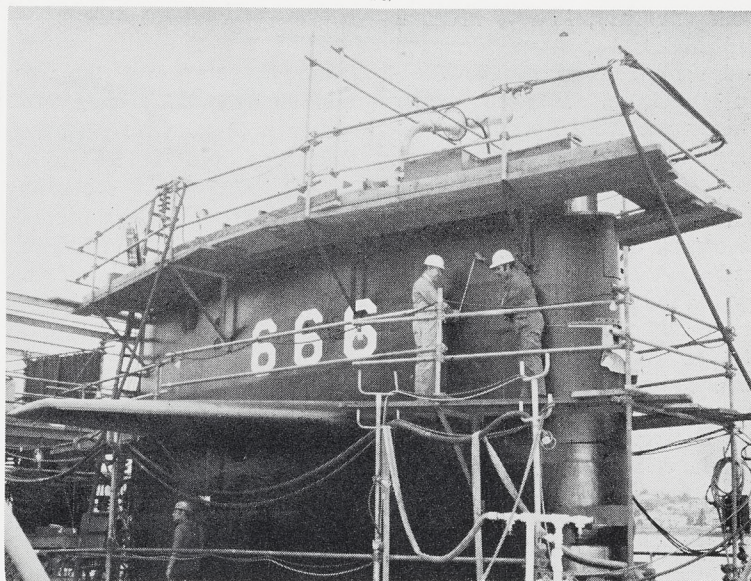
The Ocean Systems section is the systems engineering support contractor for the Navy's rescue program utilizing the Deep Submergence Rescue Vehicle. This engineering responsibility includes coordinating the engineering effort of all contractors involved in the program.

The program provides for a 50-foot, 70,000-pound submarine rescue vehicle to be transported over land by trailer or by air in a C-141 to the port nearest a sub disaster. It is then carried piggyback by "mother" submarine

(See SUB, page 8)



NORTHROP VETERANS from the Aircraft Division who recently received Northrop 25-year service pins are shown following a special luncheon in their honor. Their host was F. W. Lloyd, seated center, vice president and Aircraft Division general manager.



LOWELL EASON and **Lew Shortridge** survey the emergency TV site on the "sail" of the Hawkbill.

Northrop Continuing Upward Business Cycle

Northrop Corporation's upward trend of business operations continued as predicted during the third quarter of the current fiscal year, President Thomas V. Jones reports.

During the quarter ending April 30, Northrop earned 99 cents per share, a 13 per cent increase over the 87 cents earned during the same period a year ago, Mr. Jones noted.

"For the first nine months of the fiscal year, the company's earnings increased 18 per cent to \$2.62 per share compared with \$2.22 per share for the first nine months of last year," Mr. Jones said.

Going Up

Order backlog at April 30 amounted to \$918 million, an increase of 22 per cent over the \$752 million backlog a year ago. Sales and other income for the third quarter totaled \$126,781,000 compared with \$117,522,000 for the same period last year. Nine months sales totaled \$381,241,000, compared with

sales of \$349,326,000 in the first nine months last year.

Mr. Jones noted that about half of Northrop's current backlog represents orders from the U.S. Government.

"We expect our earnings and sales for the fourth quarter and the full fiscal year to be significantly higher than a year ago," Mr. Jones added.

In his financial report, Mr. Jones added that work is currently proceeding on a program, initiated a few months ago, to modify the F-5 tactical fighter production line to incorporate improvements in the aircraft, including higher powered engines. A concurrent engine flight test program is meeting or exceeding its goals, and preparations for the production line changes are continuing under company sponsorship on an interim basis pending authorization by the government for further funding.

This is Northrop's F-5-21 program.



PERFECT ATTENDANCE totaling 28 years was recognized in this group of Aircraft Division employees at Palmdale at a special luncheon recently. Honorees are shown with their hosts, facility supervisors, with a T-38 as a fitting backdrop.

Poseidon Subassemblies Test Program Developed

The Test Programming unit at the Electro-Mechanical Division is involved in the initial development of automated checkout tests for the Poseidon missile and several of its selected electronic subassemblies.

These tests will be used on Missile Test and Readiness Equipment (MTRE), MK 7, MOD 2 and MOD 3 systems, designed and manufactured by the Electro-Mechanical Division under subcontract from Lockheed Missiles and Space Company.

Tests Set

These test programs are being developed for several levels of testing. A series of tests will be used at the Lockheed Missiles and Space Center, Sunnyvale, for factory acceptance test of the Poseidon missile, another at the Navy's shore-based missile assembly sites, still another on board the Poseidon Fleet Submarine tenders. Finally, the last series of tests will be used on board the Launch Submarines to certify the flight readiness of the Poseidon vehicle.

The Test Programming unit,

under the supervision of E. L. Schappaugh, is divided into three disciplines. Don Hilyard heads the Engineering Analysis and Review group. This group analyzes proposed tests to insure maximum utilization of the MTRE test capabilities and methods of implementing Northrop Data Processing Services in preparing MTRE programs.

Ruth Colbert heads the Programming and Code group, whose function is to translate plain language tests into MTRE coded language using Data Processing techniques. The Program Production group, under Leon Turner, is responsible for preparing volume quantities of MTRE programs and tapes for delivery to using activities.

900 Programs

In addition to the Test Programming unit's Poseidon effort, approximately 900 Automated Test Programs are maintained for the U.S. Navy and United Kingdom Polaris programs and TEAMS On Line Monitoring Program.



FAMILY DAY—A PPD employee and his family view one of the many displays during the first "Family Day" event, sponsored by the Electronics Division's Precision Products Department.

Family Day Draws 3,500 To Precision Products

More than 3,500 people attended the first "Family Day" sponsored by the Electronics Division Precision Products Department, Norwood, Massachusetts.

Visitors received guided tours of PPD's plant area and saw exhibits of working gyros and the applications of gyros to various missile systems. Refreshments were served.

Children in attendance received toy gyros as a memento of their visit.

The Precision Products Department is involved in the design

and production of its own subminiature, miniature and large gyroscopes and accelerometers; the design, development and fabrication of sophisticated test equipment and instrumentation; and the production of many varied rate acceleration sensor packages.

"We have had many days at PPD that can be viewed as major milestones. However, none was finer than our imminently successful Family Day," said Dave Ferguson, Electronics vice president and manager of PPD.

Absenteeism Is Strange Word to Palmdale Group

Twenty-eight years of aggregate perfect attendance on the part of 19 Norair employees at the Northrop Production Flight Test was recognized in a special luncheon in the Palmdale area recently.

Two of the 19, Jack M. Hendricks and John C. Parra, were recognized for three years without an absence. Five others, James S. Lauder, Sidney A. Tite, Richard D. Oehler, Errol E. Blanc and Howard C. Blecksmith, had worked two full years without an absence.

Completing one year without an absence were Quince R. White, Douglas B. Lillard, David B. Dyer, Agnes P. Zeitler, Evelyn D. Taylor, Fred L. King, Louis R. Bergeron, Ted Kubala, Jr., Orville G. Nelson, Paul D. Curtis, James L. LaDouceur and Douglas E. Young (not in photo).

SUGGESTION AWARD GIVEN MEL TURNER

Mel Turner's money-saving idea tops the latest list of Suggestion Award prizes at Ventura.

Mr. Turner was awarded \$112 for suggesting a visual gage chart to expedite part location in the Tool Crib.

Vickie Crabb, of Plastic Products, second shift, received \$34 for her idea of using a pegboard for potting parts.

Three Venturans received \$10 each for their cost-cutting ideas. They were Frances Rush, 747 Subassembly, Frank Cua, Trim and Finishing, and William Cope, Process Control.

AREA GOVERNOR

Hank Greenberger, Electronics Division, has been elected governor of Area 4, District 50, of Toastmasters International. Mr. Greenberger is the past president of Northrop Toastmasters Club 212.



RICK GARRETT makes final verification of Poseidon MTRE program.

Two Conduct Unique Drive To Aid Child

Venturans Hank Widmer and Ted Hildebrand have concluded a unique campaign which has provided over 166 hours of life-sustaining oxygen for a needy child in a Los Angeles hospital.

But it wasn't until the end of the campaign last week that the men knew of each other's efforts. Mr. Hildebrand, a senior welder, works in the Manufacturing facility and Mr. Widmer, a contracts administrator, has his office in the Engineering building.

The generous men collected empty cigarette packs for several months. In a special program with the tobacco industry, for each empty pack turned in, the child received two minutes of free oxygen in an iron lung at the Children's Hospital clinic.

Family Affair

Mr. Hildebrand became involved in the project through his daughter, a Simi Valley High School student. His wife, an employee at Burroughs Corporation in Thousand Oaks, also collected them.

The three Hildebrands collected several thousand empty packs. Mr. Widmer collected more than 1,000 from Ventura co-workers.

He learned of the empty pack drive from a neighbor's child who is active in the Camarillo 4-H Club where Mr. Widmer lives.

How did the Ventura men learn of each other's efforts? A Northrop News reporter told them. He also thought they had been working together.

Stevens Graduates From Harvard's Advanced Program

Frederick Stevens, Jr., vice president of Corporate Diversification, was graduated recently from the 55th session of the Advanced Management Program of the Harvard University Graduate School of Business Administration.

The 13-week course is designed to provide executives with an overview of business administration and help prepare them for the broad responsibilities of core management.

The AMP, begun in 1943 and now worldwide in scope, has graduated more than 6,300 executives, most of whom occupy the top positions in business and government in the United States and overseas.

This program is one of several in which Northrop participates as a part of the Corporate Management Development activity.

JUNE JAMBOREE

John Beasley and his combo will play for dancing from 9 p.m. to 1 a.m. June 21 at NRC Clubhouse, Hawthorne, when NRC stages a "June Jamboree" dance. Tickets, available through Norair Personnel Activities, are \$3 per person and include all liquid and fun ingredients for the evening.



Mr. Stevens

Northrop Savings Plan Reflects Steadily Rising Values

Northrop's Savings Plan is one of its best fringe benefits. But because of the seeming complexities, it is also one of the least understood.

What is the Northrop Savings Plan? What is it worth to me? How does it work? These are just a few of the questions the Northrop News asked Dan Hill, Savings Plan administrator.

The Savings Plan for hourly and salaried employees offers at least a 50 per cent increase in the value of the employee's investment because of the Company contribution. For every \$1 he puts in, the Company matches it with 50 cents. The employee's money is invested at his direction, all in bonds, all in common stocks, or one-half in each. The Company contribution is invested in a Profit Account, for eventual distribution to the employee.

Popular Plan

The Plan's popularity is obvious—over 75 per cent of the employees participate. They invest \$150,000 per week (over \$7 million a year).

That \$150,000 in weekly payroll deductions, from \$2 to \$6 per week for hourly people and 2 to 8 per cent of the salaried employee's pay, is invested in bonds and/or stocks, as selected by the participant, by Manufacturer's Hanover Trust Company, a New York firm which acts as

trustee. (All trustee and handling costs are paid by Northrop.)

By pooling their money, Northrop employees benefit from investment skill which they would not be able to afford individually. The trustee, a widely respected firm, invests in selected stocks and bonds. With wise investment, the employee's money increases in value.

Value Increases

Forty-one of the 56 stocks in the Stock Fund on January 31, 1969 were then worth more than their original cost, the total Stock Fund having a value of 30 per cent above cost. For example, stock of International Business Machines (IBM) Corporation was bought at a total cost of \$324,430 and is now worth \$653,527.

Other big gainers include Anheuser-Busch, Inc., the brewery firm, stock cost \$191,050 and is now worth \$501,875, and Atlantic Richfield, the oil company, stock cost \$211,673, now worth \$572,500.

Northrop's matching 50 cents on the dollar, meanwhile, is given to the trustee to invest solely in Northrop common stock on behalf of the participating employees. The stock is bought on the open market.

Because the Northrop fund is all "profit" to the employee, it is called the "Profit Fund," while the others are Stock and Bond

Funds. Employees may participate in stocks, bonds, or both.

When any of the companies declare dividends, the money is put back into the funds to buy more stock.

The employee gets his money—and then some—returned when

he retires, leaves the Company, or otherwise ceases to be a participant. If he voluntarily withdraws, quits or is discharged, however, the value of the last two years of the Company's contribution is forfeited.

The employee gets money, not

stock for his investment, when he leaves the Plan. The amount is determined by the unit value of his interest in the Savings Account. If his Profit Account is worth over \$500, he receives Northrop stock, otherwise he receives cash.

For example, on the basis of a \$10 per week employee investment, after five years his investment would be \$2,600. By adding the \$1,300 the Company has put in the Profit Fund and assuming a conservative growth in stock and bond values, his investment should be worth \$4,530. Assuming the same growth pattern, after 45 years of participation at the same rate of \$10 per week, an employee would have contributed \$23,400, with a possible value of \$170,770 or more.

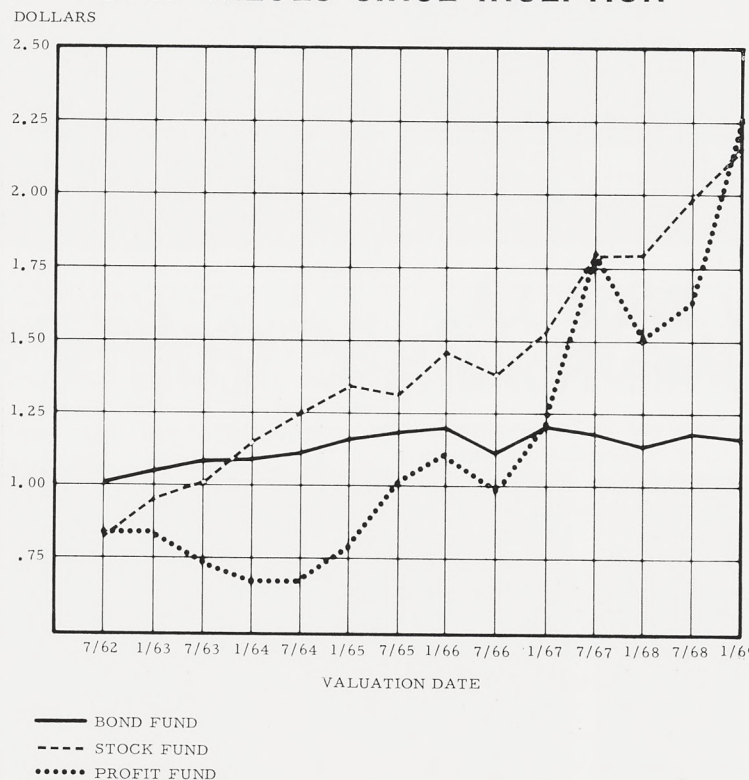
Possible Growth

The increase in Stock Fund unit values indicates the possible growth of an employee's investment. In July of 1962 the unit value was only 82 cents. A year later it rose to \$1.03. It climbed to \$1.38 in 1966 and last July hit \$1.98.

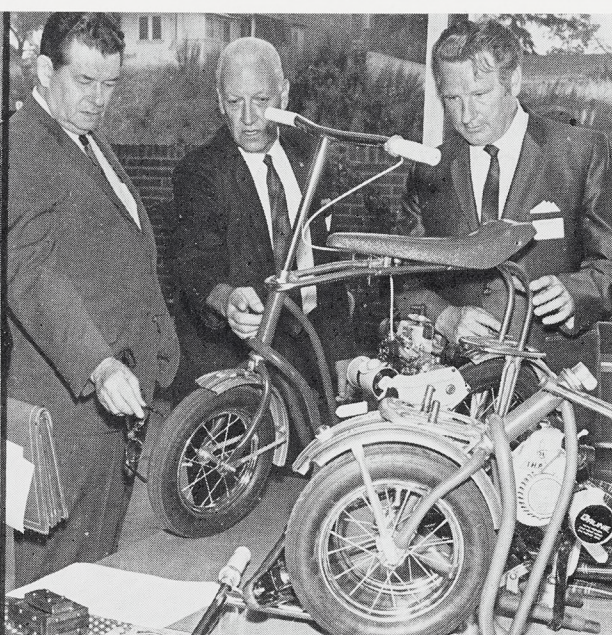
Although the unit value will fluctuate with the trends of the stock market, history indicates that over the long pull, stock values will gradually increase.

Full details of the plan may be obtained in booklet form from any Industrial Relations office.

NORTHROP SAVINGS PLANS UNIT VALUES SINCE INCEPTION



BIG HIT OF THE Sixth Annual Licensing Opportunity Day for Executives show sponsored by the Los Angeles Chamber of Commerce is the "mini cycle" developed by Deane Palmer, Norair. At left above, Stan Peterson, Corporate Product Licensing, jokingly tries to thumb a ride on the mini cycle from model Katinka



Fox. Right, manufacturer Frank Anderson is an interested observer as John Oliver, administrator, Corporate Product Licensing, points out features of the unique cycle. With them, right, is Jim Crawford, Aircraft Division, Patenting and Licensing representative.

Inventions Displayed at Licensing Show

Northrop displayed six inventions at the Sixth Annual Licensing Opportunity Day for Executives sponsored by the Los Angeles Chamber of Commerce on May 21.

All products displayed are available for licensing. The Northrop display was arranged by Corporate Product Licensing.

Three Northrop divisions were represented. The Norair Division showed:

- A collapsible portable telescope with a new method of construction that permits the entire telescope, including the optical components, equatorial mount, support base and all hardware to be disassembled and packed in a portable package. It was developed by Walter Watson.

- Shot Peening Intensity Eval-

uator which positions strips to simulate the surfaces of parts to be shot peened. Unless a full range of intensities is measured and controlled, shot peening specification requirements cannot be fulfilled. Shot peening is used to remove stress from metal. Charlie Ford was the developer.

- Heating device for strain gauge installation, developed by Ed Teruya, is a self-contained pressure and heating device for strain gauge installation on large flat and vertical panels.

- The "Fifth Wheel" is a 25 pound lightweight collapsible mini cycle developed by Deane Palmer for pleasure or utility. It is designed to be disassembled and packed into a 9 by 16 by 22 inch case by one person in less than two minutes. It operates at

18 to 20 mph. It is ideally suited as an emergency vehicle that can be conveniently carried in the trunk of a car.

- The Electronics Division displayed a Temp-Tip. This device provides a controlled heat producing tip used to locate temperature sensitive miniature and micro-miniature electronic components on circuit cards or to isolate temperature sensitive components closely spaced together. Dan Winters was the developer.

- The Electro-Mechanical Division demonstrated a Wave Form Analyzer to measure electronic radar pulses in radar, electronic countermeasures, and computer applications. It requires no operator in contrast to present commercial models which have from 15 to 20 controls an operator must adjust.

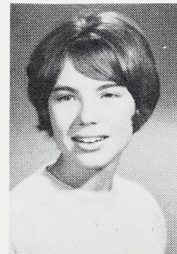
Susan Hattersley Earns Two Scholarship Awards

Susan Hattersley, daughter of Frances Hattersley, Electronics Division secretary in Major Subcontracts Administration, has received two scholarship awards for her outstanding scholastic record.

Susan, who graduates this month from Marymount High School, received a \$300 California State Scholarship and a \$100 award from the California Savings and Loan Association in conjunction with the Downey Savings and Loan Association.

The latter award is presented each year to an outstanding Marymount student. Susan accepted the award at a luncheon held last month at the Hotel Biltmore.

Susan has also received a National Merit Letter of Commendation and was recently named a member of Who's Who in America.



Susan Hattersley

ican High School Students.

Susan belongs to the National Honor Society. She plans to attend UCLA this fall and hopes to pursue a career in the nursing profession.

New Laboratory Created; Malm Named Director

Dr. Robert Malm has joined the staff of the Northrop Corporate Laboratories to serve as director of a newly-established Information Sciences Laboratory.

The appointment and creation of the new laboratory was announced by Dr. D. A. Hicks, vice president and NCL manager.

Dr. Malm comes to NCL from Northrop Page Communications Engineers, Inc., where he was vice president and director of research and development activities. Author of several technical papers, he possesses over 20 years of experience in error-correcting codes for anti-jamming communications, information theory, communication-system analysis, high-speed digital circuits, electro- and acousto-optical phenomena, and optical signal processing techniques. Before joining Northrop, Dr. Malm was manager of the Information Systems department of Texas Instruments' Apparatus Division.

Dr. Malm received a BEE degree from the University of Minnesota and a Ph.D. in physics from Massachusetts Institute of Technology.



Dr. Malm

BERNSTEIN GETS GOVERNMENT POST

Charles H. Bernstein, formerly director of Systems Analysis for the Aircraft Division, has been appointed deputy assistant secretary of defense—Systems Analysis (Strategic Programs).

Mr. Bernstein joined Northrop Corporation in 1953 after earning A.B. and M.A. degrees in mathematics from Princeton University. He left the company in 1956 and returned in 1961.

Prior to assuming his latest Northrop duties, Mr. Bernstein served as supervisor of the Operations Analysis branch and chief of the Systems Evaluation group.



UPON COMPLETION—Rita Moser, Graphic Operations, receives a certificate of completion from Verne Reynolds at conclusion of communications class featuring use of closed-circuit television.

Keiko Company Wins J.A. Southern California Honor

The Los Angeles Junior Chamber of Commerce has selected the Keiko Company, the Electro-Mechanical Division counselled Junior Achievement Company, as second runner-up in the "Company of the Year" Southern California finals for 1968-69.

"This ranks our Northrop-counselled company third out of 221 Junior Achievement companies in Southern California," Bob Varner, management advisor for the company, said.

Junior Achievement teaches the principles of free enterprise by assisting high school students to set up, manufacture and sell a product of their own choosing during the school year. The company operates like a corporation and finances operations through the sale of stock.

In a letter announcing the honor to Keiko, G. Robert Truex, Jr., president, Junior Achievement, Southern California, said this qualifies Keiko to compete for Regional honors in San Francisco next month as one of the three Southern California entries.

Earlier Keiko won the right to compete in the Southern California finals by being named "Company of the Year" for Orange County.

In the letter, addressed to Ken Terry, Industrial Relations coordinator for Keiko, Mr. Truex went on to say, "You and your

advisors are to be congratulated for your outstanding performance this past year. The good work is reflected through the advisors who are on the 'firing line' molding and shaping the attitudes of our young people in business and our way of life."

Northrop advisors for Keiko are Bob Varner, management; Tom Maxwell, production; Don Myers, operations; Bob Barry, finance; Tom Sneed, sales; and Ken Terry, Industrial Relations coordinator.



MEMBERS OF THE AWARD-WINNING Keiko Company, Junior Achievement, show their product to Electro-Mechanical Division's Ray Schultz. From left are Kurt Yunker, Keiko vice president for Sales, Diane Cribari, sales manager, Mr. Schultz, and Vicki Sellers, production manager.

Northrop's Martin Rojas Family Reflects Full Community Service

Volunteer community service in civic, welfare and educational fields is a trait shared by many Northrop families. However, it would be difficult to find a family more dedicated than the members of the Martin A. Rojas, Jr. family.

Mr. Rojas is an engineering methods analyst, a 15-year Northrop veteran currently serving in the 747 Program.

He has been a member of the El Monte elementary school board for the past eight years and is currently its vice president. He is secretary of the Area Trustees and a member of the California School Boards Association. Recently, he attended the School Board Members Convention in Miami Beach as an official delegate. In his spare time he is active in Boy Scout and PTA work.

Mrs. Rojas, Martha, is a graduate student at California State

College at Los Angeles, working for teaching credentials in special education. She was recently elected vice president of Sigma Delta Pi, Spanish honor society. She is also an active member of Phi Lambda Theta and a constant worker in Boy Scout and PTA affairs.

Martin Rojas III, 17, is captain of the varsity swim team at El Monte high, secretary of the Spanish Club and a member of the Lions Club, a citizenship and scholarship society. He is also a finalist in the American Field Services program for exchange students.

Victor Rojas, 13, is a member of the student council, the band and orchestra (he plays five instruments) at Columbia Junior High. He is librarian of his Boy Scout troop, served as a senior patrol leader at Camporee time and has just been named a candidate for the Order of the Arrow.

Closed-Circuit TV Does Big Job in Helping Bridge Communication Gaps

Why is it so difficult for people to understand each other? What can be done to overcome the communication barriers that exist between people? How can we be sure we are successfully getting our message across?

L. L. (Verne) Reynolds and Ralph Carey, Jr., believe that proper training in the skills of communication can substantially increase the probability of understanding. And results of their communication workshops using closed-circuit television show distinct, obvious improvements.

Mr. Reynolds is the supervisor of Professional Training at Northrop; Mr. Carey is a training specialist in the field of communications.

"It has been our experience," Mr. Reynolds explained, "that people who are highly regarded in their own specialty have had little training in how to share that information with other people in a persuasive, articulate manner."

He added, "But there are ways to bridge the communication gaps. Initially, it requires a better understanding of the techniques and disciplines involved. Fortunately, the skills for improved communication can be taught to anyone willing to learn and practice the disciplines."

Use of closed-circuit television in teaching these skills began two years ago at Northrop under Mr.

Reynolds' direction. He holds a master's degree in speech from the University of Iowa, and had worked professionally in radio and television for many years before coming to Northrop.

"We felt television could be used here to speed up the education process," he said. So he leased video tape recording equipment and then conducted a seven-week pilot class in "Effective Presentations" for members of Northrop management.

There were 10 participants in the first class. "When we reviewed the 'before and after' tapes at the conclusion of the course, the improvement was obvious to all concerned."

"The participants developed greater poise, confidence, an improved personal appearance,

learned how to better organize their materials, and how to create more effective visual aids, such as charts and graphs."

By allowing the speakers to see themselves on an immediate tape replay, they frequently spot their own faults and correct them without having to depend upon subjective observations from other people.

Over 250 Northrop people have now received specialized communication training, with video tape feedback. Twenty-five first line supervisors at Ventura have just concluded a 10-week course taught by Mr. Carey, on loan from the Northrop Division. Classes in listening, speaking, conference leadership, and supervisory development have all been carefully designed to make the best use of the television VTR equipment.

NORTHROP NEWSMAKERS

W. F. Keller, Aircraft Division, has authored a paper titled "Reaction Controls for Jet-Lift Aircraft" for presentation this month before the AIAA's Fifth Propulsion Joint Specialist Conference.

E. R. Beeman and S. A. Powers, Aircraft Division, are co-authors of a paper titled "A Method for Determining the Complete Flow Field Around Conical Wings at Supersonic/Hypersonic Speeds" to be presented this month in San Francisco at the AIAA Second Fluid and Plasma Dynamics Conference.

Jurgen Budke, Northrop Corporate Laboratories, has written an article titled "Evaporation of NaCl Cleavage Planes in Vacuum" for publication in the Journal of Applied Physics.

Rudolph H. Andrews, Aircraft Division, has written an article titled "Optimum Climb Trajectories at Constant Lift Coefficient" for publication in the AIAA Journal of Aircraft.

Moe Star, Aircraft Division, has been named to the board of

MOON SLIDES

Norair Personnel Activities has for sale a limited number of color slides taken on the Apollo 8 and 9 lunar excursions. Sets of 20 slides each sell for \$3, plus tax.

directors of WINCON 70, the 1970 Winter Convention on Aerospace and Electronics Systems.

Dick Thomas, Aircraft Division, discussed "Flight Testing of Aircraft—the Ultimate in Nondestructive Testing" before the 17th Annual Spring Educational Seminar sponsored by American Society for Nondestructive Testing in Los Angeles. Mr. Thomas is a Northrop test pilot.

MANAGEMENT CLUB TO HEAR PHYSICIAN

Well-known cardiologist and internist Dr. Ramon Spritzler will discuss the medical health of the executive at tonight's meeting of the Northrop Ventura Management Club.

The social hour begins at 5:30 p.m. and dinner at Los Robles Inn, Thousand Oaks, is at 6:30. Special entertainment will be by the Conejo Valley chapter of the SPEBQSA, including several Venturans.

Dr. Spritzler, personal physician to the Shah of Iran, is a Los Angeles resident. He is a guest lecturer at the University of Southern California School of Medicine, a licensed pilot and FAA medical examiner.

Although reservations are required for the dinner, a few seats may still be available. Club President Hank Fritzel said.

Ventura Leading In Northrop's Big Duck Race

The Northrop duck race is on and already there are cries of "Fowl!"

It all began last fall with the arrival of two mallard ducks at the Ventura Division. As Ventura's hen sat on her eggs in February, two ducks appeared at Electronics Division's Palos Verdes pond 70 miles away.

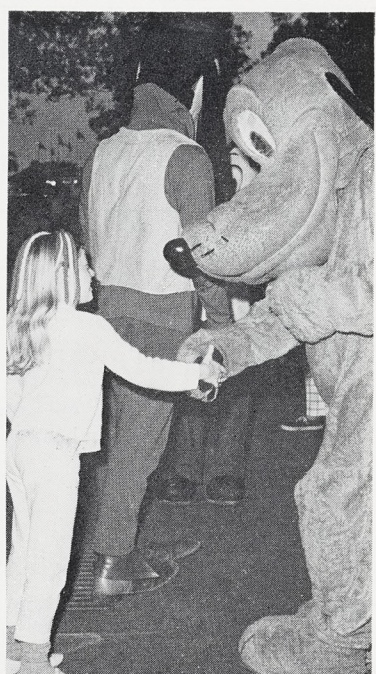
Ventura now has 22 ducks on its stream and pond versus 14 ducks at Palos Verdes. However, PV's mother mallard is warily sitting on 16 more eggs. Seven eggs from her previous batch mysteriously disappeared.

How much longer will this race last?

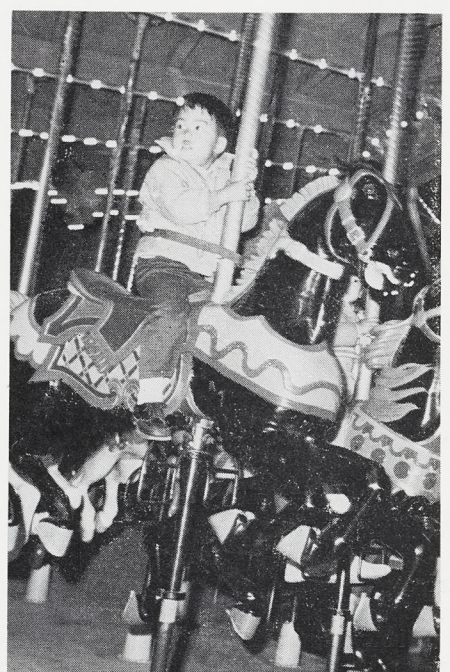
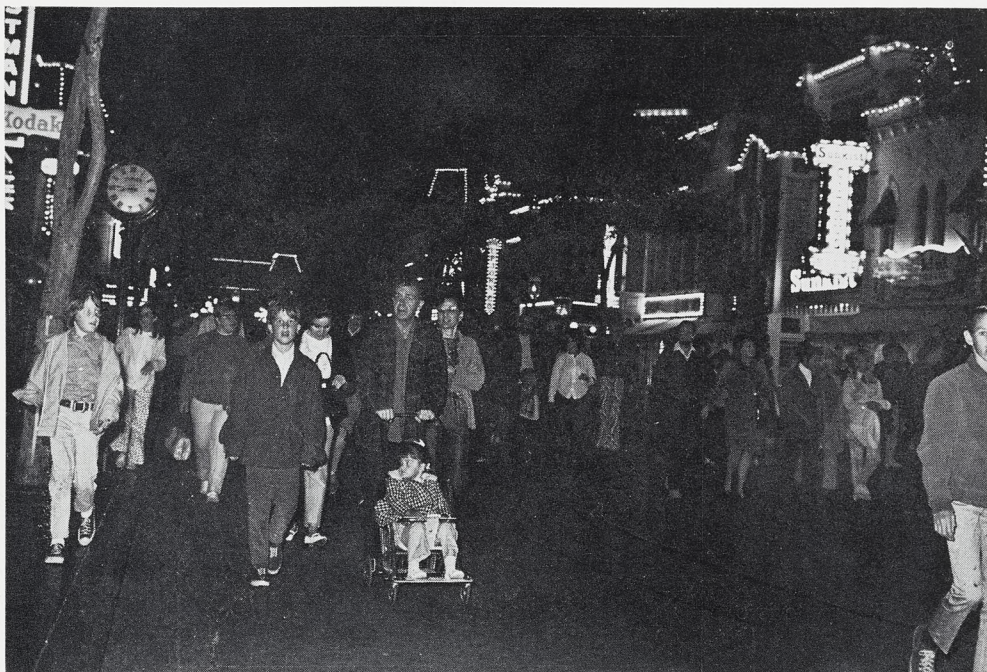
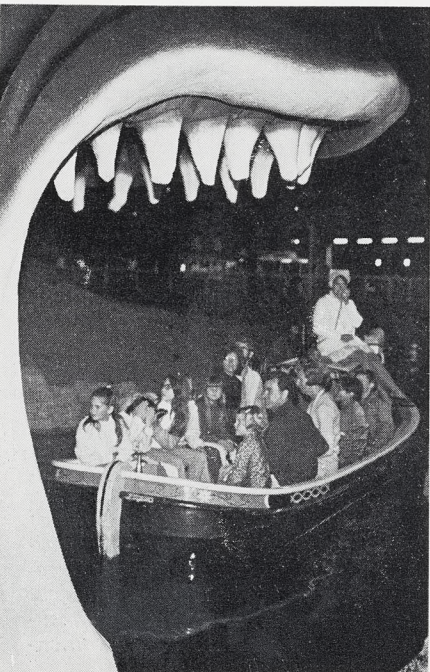
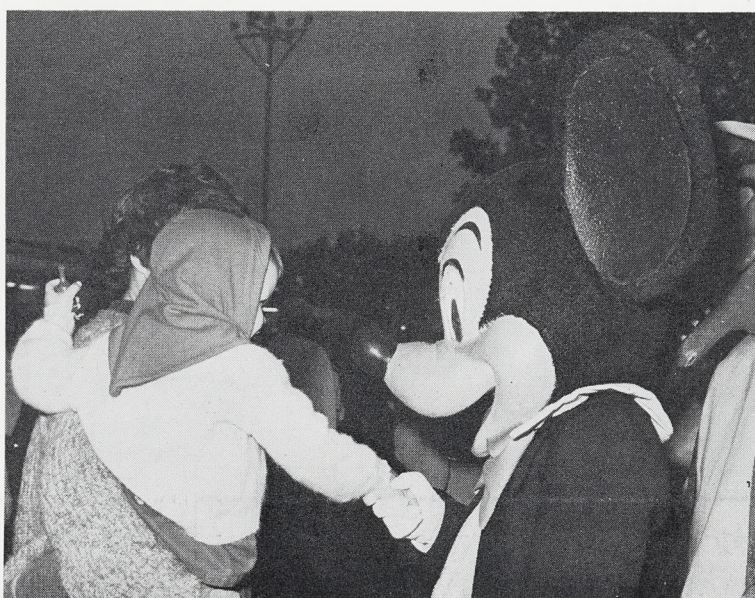
According to mathematicians from both divisions, it may never end. Projections call for more than 1 million ducks on the two Northrop ponds by 1975.



THE MARTIN ROJAS family leads a busy life in civic, educational and welfare activities outside the home. They are, from left, Victor 13, Martin, Jr., Martha and Martin, III. Photo by Dave Saldana.



Northrop Families Enjoy Night at Disneyland



WHAT DO YOU THINK?

Where in The World Would You Go On a Month-Long Paid Vacation



Mrs. Rideout

Lilliam Rideout, secretary, Proposals, Electronics:

I'd like to go back to Nicaragua because that's where I was born. I've only been there three times since 1953 and I would love to go back and see my many relatives.

James Henderson, E&E Liaison, Polaris Depot, Electro-Mechanical:

I would like to go to Africa because I think it is an exciting and beautiful country to visit for a vacation.



Mr. Henderson



Mrs. Greenberg

Sonya Greenberg, Plastic Lamination, Ventura:

Israel. I came from there 11 years ago and haven't been back. I'd like to see the new Jerusalem. There have been many changes since I left.

Walt Sadesky, staff assistant, Machine Bonding and Process, Norair:

I would go to Italy and Germany. The history of the two countries just fascinates me. I like art and literature and I feel I could find and see many of the things I've read about both countries.



Mr. Sadesky



Mr. Terry

Deo Terry, engineering test assistant, Electronics:

I would take off for Spain. I'd like to see a Spanish bullfight and get to know the Spanish people. Spain is just the one country I've always wanted to visit and, someday, I will get there.

Sefie Garcia, secretary, Plant Engineering, Electro-Mechanical:

I'd like to go to Rome. Why? Oh, naturally I'd like to see the famous sights, the Coliseum, the Basilica, St. Peters, the catacombs and such. But I'd also like to visit the dress designers' shops. I like Italian fashions and would like to see how their fashion ideas come about.



Mrs. Garcia



Mr. Gibson

Gordon Gibson, Northrop Data Processing:

Tahiti. Ever since I saw the movie "Mutiny On The Bounty" I've wanted to go there. I couldn't believe it. Beautiful weather, beautiful girls, no wars and no computers.



Mrs. Miladin

Betty Miladin, secretary, Air Force Plant Representative Office:

I'd go to Nassau. I've been there before and it was fun, elegant, friendly and a very nice place. My husband and I have been to many other places for vacations, but we like Nassau the best.

MOUNTAINEERS PLAN RIDGE TRAVERSE

Northrop Mountaineers will return to the starting point in the late afternoon. Four quarts of water should be carried. Les Stockton and Ken Ferrell will serve as leaders. The route is one of the most scenic in the high country of the Southland.

Hikers will scale four 10,000-foot peaks during the day and

A NORTHROP DAUGHTER

Julie Felix—Europe's Top Folk Singer

Europe's most popular and highest paid folk singer is the 29-year-old daughter of Norair Engineer Planner Lorenzo Felix.

Julie Felix, who looks and sings like the popular Joan Baez, is described in Britain's "Records" magazine as "A singer to rival the international fame of folk stars like Be'afonte, Odetta and Peter, Paul and Mary."

Miss Felix now has her own television interview show on England's BBC Network (called "Once More With Felix") for the second year, has five LP records to her credit and many best-selling singles.

"But her best appeal," says her father, "is in personal appearances." In a charity concert to aid starving Africans she sold out London's Royal Albert Hall and drew over 7,000. Included in the audience were Britain's Prince Phillip and Prince Rainier and Princess Grace of Monaco.

Only four years before, though, she had been singing for her supper in cafes on obscure Greek islands.

Miss Felix learned Spanish guitar from her father, a former professional guitarist and native of Mexico. She picked up Spanish language songs from him and old American folk songs from her mother, who is of pioneer background.

After graduating from Westchester High School in 1956 she went on to graduate from the University of California at Santa Barbara in speech and drama and

studied at the Pasadena Playhouse.

Uninspired by small singing jobs in Southern California coffee houses, she saved \$1,000 and took a boat to Greece. She lived there with friends for a short while and soon had to sing to eat.

From Greece she wandered across Southern Europe to Spain

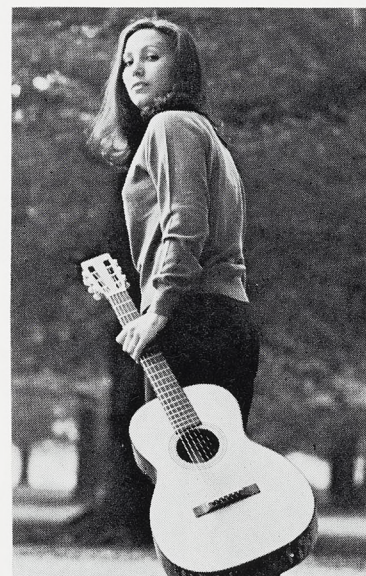
where her Spanish repertoire led to quick success. A visit to England led to a few guest television appearances and a concert with rock idol Donovan.

Donovan's concert sold out the day of the event. Miss Felix, when subsequently billed on her own, sold out four weeks in advance. Now after arriving in England only five years ago her name is as well known as the Queen's.

Critics acclaim the brown-eyed brunette as "a breath of fresh air in a world currently overriden with mediocre folksingers... projects tremendous believability... a bell-clear voice, controlled tone and forcefulness of purpose."

A British newspaper quotes Miss Felix as saying that folk songs "parallel my own thoughts—the fun of living, the call of far-off places." She says she "uses entertainment to communicate."

Has success spoiled Julie Felix? "Oh, I don't think so," says her father, a 17-year Northrop employee. "She writes us often and when she's too busy to write she telephones."



JULIE FELIX

Clute Steps Back in Time Through Unusual Hobby

When Dick P. Clute leaves the Electro - Mechanical Division each day he steps back in time 79 years on arrival home.

His den is papered with red flocked gay nineties wallpaper, the curtains are red-gold relics, his bookcase came around the Horn in a sailing ship in the gold rush days and his desk is a roll-top that 50 years ago graced the office of a vice president of the American Railway Express.

This unique setting is to get him in the mood for his hobby of collecting railroad antiques and being president of "two railroads that aren't there anymore."

In his collection are such oddities as a spittoon from the general offices of the Virginia and Truckee Railroad of 70 years ago, tickets from Colorado narrow gauge lines of silver boom days and passes issued in the 1870's to such famous men as Cornelius Vanderbilt I, railroad magnate, and Horace Greeley, the editor and presidential candidate who said, "Go West, Young Man."

Mr. Clute got into his unusual hobby through his interest in HO gauge railroading. Visiting the World's Fair in Chicago in 1933, he saw an elaborate dis-

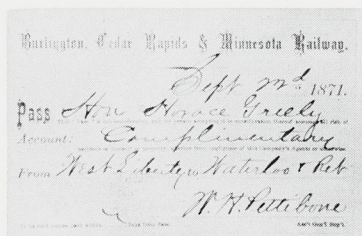
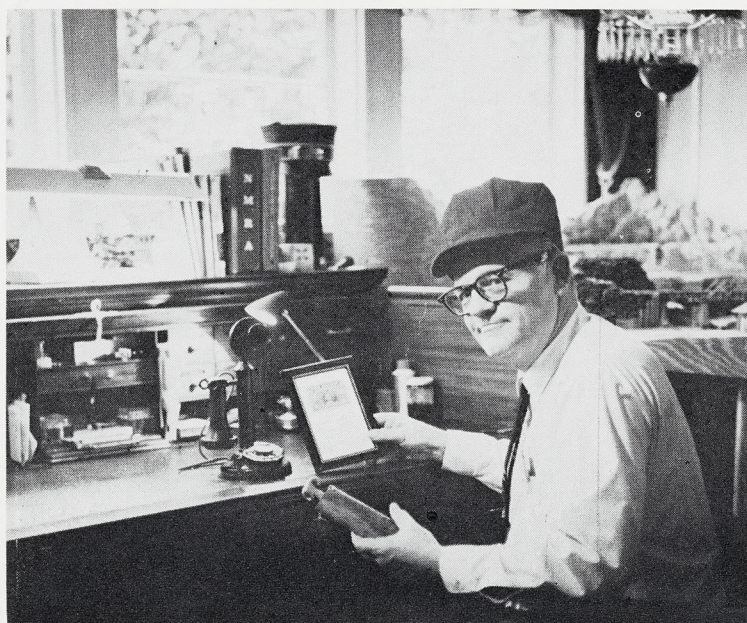
play of the first HO gauge stock. Returning home he started building these new size trains himself.

From his model railroading, he became interested in actual antiques in 1950. Since then he has collected everything from original spikes from such historic roads as the Denver, South Park and Pacific narrow gauge track to an outstanding library on old Western railroads. His interest is restricted to Western roads.

His library, housed in the days of 1849 bookcases, includes many rare first and limited editions. In his travels searching out the remains of old tracks, he has visited many of the authors and gotten the books autographed.

His collection is not limited to artifacts. He also collects names. It seems that sentimental railroad hobbyists hate to see famous old names disappear. So those that are no longer in use are frequently re-incorporated by the hobbyists to revive them in name only.

The two that Mr. Clute re-incorporated are the Nevada County Narrow Gauge Railroad and the Yosemite Valley Railroad Company. It cost him \$30 in fees to re-incorporate them and now he is the official owner of the two paper corporations. Each year he has to fill out the proper government reports and declare that he has made no profit on the railroads that aren't there anymore.



DICK CLUTE sits at a desk from the old Railway Express, holding a framed original of a pass, above, issued to presidential candidate Horace Greeley in 1871. The metal object is an original telegraph insulator he found near Promontory, Utah.

Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

Corvair Monza, 1965 r/h, \$775. 213-324-3410. A

Mustang, 1966, American mags, 4-spd., V-8 eng., \$1,900. 714-870-1998. A

Volkswagen, 1968 fastback, under warranty, take over \$80.47 mo. pymts. for 28 mos., \$2,200. 805-947-8771. A

Dodge, 1965, 383 eng., \$800. 213-677-8802. A

Buick, 1962 Skylark, 2-dr. h/top, \$600. 213-596-3941. A

Ford, 1966 GTA Fairlane, V-8, 330 cu. in., 4 bbl., r/h, p/s, assume \$64 mo. loan or \$1,300. 805-498-6298. A

Falcon, 1962 Futura, big 6, 4-spd., many extras, \$495. 714-521-1516. A

Camaro, 1967 RS, 327/275 eng., auto. trans., p/s, r/h, \$1,925. 714-522-4649. A

Firebird, 1967 400 convt., 4-spd., 25,000 miles, \$2,500. 213-373-1275. A

Station Wagon, Ford, 1959, V-8, r/h, auto. trans., \$150. 213-676-0432. A

NSU, 1960 roadster, no top, \$100. 213-327-4585. A

El Camino, 1964, auto. trans., p/s, p/w, \$1,200. 213-860-4980. A

Datsun, 1967 convt., model 1600, \$1,600. 213-379-8090. A

Pickup, 1958 Ford, 1/2-ton, new eng. & trans., \$575. 213-542-2098. A

Volkswagen, 1966 sedan, \$1,350. 213-644-8555. A

Chevrolet, 1965 Impala, 4-dr., r/h, auto. trans., air, \$1,300. 213-644-3285. A

Jeep, 1968 CJ5, V-6 eng., metal top, roll & tow bars, r/h, many extras, \$2,700. 805-498-6463. A

Station Wagon, 1964 Tempest, fact. air, auto. trans., \$925. 213-846-5589. A

Chevrolet, 1967 Chevrolet Malibu, 2-dr., 283 cu. in., Powerglide trans., r/h, \$1,900. 213-444-5720. A

Mercury, 1966 Deluxe Parklane, 4-dr., full power, fact. air, d/brakes, \$1,850. 805-527-1824. A

Chrysler, 1966 Newport, 4-dr. town sedan, a/c, p/b, p/s, \$1,900. 213-542-1147. A

Pontiac, 1967 LeMans, a/c, 25,000 mi., \$2,195. 213-545-5924. A

Cadillac, 1961 Coupe DeVille, full power, a/c, \$800. 805-482-3745. A

Austin Healey, 1959, 6-cyl., 4-seater, recently o/hauled, \$800. 213-545-4090. A

Datsun, 1968 510, 4-dr. sedan, \$1,725. 213-882-0761. A

MGTD, 1953, new tires & top, \$900. 714-778-3277. A

MGB, 1967, r/h, tonneau cover, \$1,800. 213-436-5965. A

Dodge, 1960 Pioneer, V-8, \$95. 213-324-2172. A

Cadillac, 1962, \$750. 213-755-8298. A

Fiat, 1961 1200 convt. roadster, new top, rebilt. eng., \$500. 213-831-3305. A

Ford, 1962 Galaxie, \$300. 213-752-2717. A

Station Wagon, 1965 Chev. Malibu, 2-dr., Astros, extras, \$1,600. 213-372-7342. A

Chevrolet, 1957, 2-dr. h/top, 283 cu. in., auto. trans., r/h, \$350. 805-498-3305. A

Mustang, 1966 2 + 2, V-8, \$1,495. 213-377-7670. A

Volkswagen, 1966, r/h, \$1,495. 213-327-0447. A

Dodge, 1962 sedan, w/1965 big 6 eng., auto. trans., r/h, \$500. 213-776-4845. A

Jeep, 1947 CJ-2A, rebilt. block, new trans., r/h, soft top, \$1,000. 213-378-1816. A

Mustang, 1966 h/top, full power, \$1,695. 213-324-7828. A

Station Wagon, 1969 Datsun, r/h, a/c, roof rack, \$2,500. 714-968-5343. A

Ford, 1958, 2-dr., \$175. 213-329-1723. A

Station Wagon, 1966 Nova, V-8, auto., air, \$1,525. 213-862-3027. A

TR-4, 1964 convt., wire wheels, \$1,100. 213-390-5829. A

Pickup, 1964 GMC, V-6, 1/2-ton, w/camper, 8' bed, \$1,100. 213-455-2224. A

Volkswagen, 1968, \$1,775. Box 1001. A

MGTD, 1952, rebilt. eng. & body, \$1,500. 714-871-1406. A

Dodge, 1964 Dart GT, 6, auto., \$695. 213-372-1386. A

Volkswagen, 1968, sunroof, radio, \$1,650. 213-545-5381. A

BMW, 1961 700 coupe, \$200. 213-376-5820. A

Volkswagen, 1965, r/h, \$1,050. 213-325-9530. A

Karmann Ghia, 1967, r/h, 16,000 mi., \$1,650. 213-644-1945. A

Chrysler, 1956, 4-dr., \$125. 213-675-5210. A

Falcon, 1964 convt., r/h, auto. trans., \$750. 213-581-5208. A

Volkswagen, 1964 sedan, radio, \$925. 213-248-9274. A

Automobiles For Sale

Volkswagen, 1968, 11,000 mi., extras, \$1,750. 714-897-3448. A

Household Items For Sale

Range, Genera Electric, white, \$100. 213-371-1367. B

Stove, Gaffers & Sattler, refrigerator, Frigidaire, coppertone, \$350. 213-532-6162. B

Dining Room Table, manogany w/4 padded chairs, \$50. 213-644-7011. B

Headboards, 2 bookcase-type twin size, w/2 night stands, natural ash, \$20. 213-377-4708. B

Dresser, triple, walnut, 62" long, \$40. 213-776-0070. B

Refrigerator, 16 cu. ft. frostless, copper-tone, 180 lb. bottom freezer w/auto. ice maker, 2 yrs. old, \$225. 213-675-3695. B

Wasner, 1968 Norge UHF, nvy. duty, 18 lo. cap., 5 yr. guarantee, \$150. 213-329-9909. B

Dinette Set, table & 4 chairs, chrome legs, \$20. 213-751-8420. B

Bed Frame, maple, dble., w/bookcase headboard, \$20. 213-474-8640. B

Couch, 3-pc. sectional, dk. brown, \$25. 213-324-049. B

Couch, brown & black tweed, newly recovered, 8' long, \$120. 213-676-8789. B

Washer, RCA, green & dryer, \$175. 213-675-9433. B

Dining Table, 50" round Danish walnut, 4 matching chairs, 3 1/2 yrs. old, \$75. 714-537-5088. B

Range, apt. size, gas, \$25. 213-324-8758. B

Furniture, 10-pc. rattan, \$100. 213-671-6205. B

Sofa, 74" 2-cushion Lawson, \$80. 213-645-0544. B

Refrigerator, white, \$50. 213-325-0739. B

Stove, elec., Frigidaire Flair, 2 ovens, \$350. 213-327-8412. B

Table, Salem maple, 48" round w/2 ext. leaves, \$35. 213-374-4703. B

Chair, lge. club, brown tweed, \$25. 213-375-0320. B

Couch, Early American, makes into bed, \$5. 213-329-9982. B

Rocking Chair, platform, swivel, dk. brown, maple trim, \$20. 213-679-6982. B

Stove, clock, timer, gas, white, \$75. 213-323-9153. B

Range, Wedgewood, 4-burner, center grill, \$65. 213-379-2980. B

Box Spring & mattress, dble., used 3 mos., \$20. 714-530-2271. B

Miscellaneous For Sale

Tape Recorder, Tancberg mod. 5, stereo record & playback, \$175. 213-675-4121. C

Stereo, Panasonic AM/FM w/8-track tape, 6 mos. old, \$250. 213-671-6692. C

House, 2-bdrm., dble. gar., large lot, within walking distance of El Camino College, \$22,000. 213-676-8892. C

Mufflers, 2 1969 stock Chevrolet, \$20. 213-672-9428. C

Transmission, 4-spd., Muncie w/Hurst linkage, \$195. 213-679-6269. C

Adding Machine, Remington, 10-key, \$35. 213-754-5358. C

Camera, 35mm r.f. Ansco Mark M, w/50mm f/1.9 35mm wide & 100m tele. lens, \$150. 213-638-6238. C

Motorcycle, 1965 Ducati Diana, 250 cc, \$350. 213-545-1570. C

Movie Camera, Cannon 318, carrying case, Cannon C-8 trigger grip 4, \$75. 213-296-2431. C

Tent, 10' x 12' cabin, \$50, 714-774-2779. C

Surfboard, McTavish tracker, 7'4", \$70. 213-374-6162. C

Engine, 289 Ford, Cobra equipped, \$180. 714-532-5342. C

Motor Scooter, Cushman, disassembled, \$35. 213-326-9157. C

B-B-Q, Kenmore 24" dia. grill, stainless steel, on wheels, \$10. 213-676-3050. C

Ham Band, NC300, \$100. 213-863-7705. C

Honda, 1968, S90, fully trail equipped, \$315. 714-838-7692. C

Tape Recorder, Sony prof. mod., AC-DC port., \$35. 213-376-5290. C

Sailboat, 13' Metcalf w/trailer & cover, \$575. 213-674-8997. C

Engine, new 283 Chev., complete, auto. trans., \$300. 213-324-9989. C

Guitar, Gibson, \$70. 213-372-8618. C

Boat, 16' Glaspar, 1960 Citation, dble. hull w/80 h.p. Mercury outd., many extras, lge. wheel trailer, \$995. 213-838-3336. C

Units, 6, & 2-bdrm. home, 2 lots, 50' x 150', carports, \$82,000. 213-320-2827. C

Ski Boat, 1965 Power Cat, 3-point Hydro, Wallstrong trailer, 80 h.p. Mercury eng., \$1,750. 714-827-5911. C

Ski Boat, 13' Wizard, fiberglass, tilt-top trailer, \$250. 213-378-3055. C

Bicycle, girls' 20" Huffy, \$10. 213-672-4794. C

Camping Equipment, complete w/2-room tent, \$175. 213-645-7931. C

Wedding Rings, \$200. 213-635-4553. C

TV, Zenith, 23" b&w, \$40. 213-320-6887. C

Sailboat, 14' O'Day Javelin, w/main, jib sails & trailer, \$850. 213-785-6097. C

Utility Trailer, 4' x 8' x 4', \$125. 213-326-1409. C

Saber Saw, lge. Sears Craftsman, 1" stroke, \$20. 213-672-2370. C

Mini Bike, Roma Nova, 3 1/2 h.p., d/brakes, \$97.50. 213-378-2369. C

TV, 21" Packard Bell, b&w, \$20. 213-534-2752. C

Miscellaneous For Sale

Cabin Cruiser, 26' Chris Craft, 6 cyl. Hercules eng., dble. planked white oak hull, sleeps 4, \$1,050. 714-968-5183. C

Motor Scooter, 1960 Harley Davidson, motor o/hauled, \$195. 213-644-8789. C

Trailer, 16' Santa Fe, sleeps 6, butane refrig. & stove, \$1,095. 213-675-1771. C

Motorcycle, 1962 Honda 50, \$65. 213-644-3853. C

Cemetery Lot, dble. interment, Starlite Terrace sec., Green Hills Memorial Pk., incl. endowment care, \$700. 714-982-3705. C

Camp-Trailer, tent top, folds out to 96', 15" wheels, sleeps 6, \$325. 714-528-8582. C

Guitar, elec., Orpheus, vibrator arm, 2 pickups & case, \$50. 213-776-1716. C

Poodles, French, toy min., 6 wks. old, \$25. 213-679-7840. C

Aquarium, ail access., 20 gal., \$22. 213-377-4251. C

Tape Recorder, stereo, Akai X-1800-SD, walnut case, \$280. 213-377-7081. C

Portable Bar, 4' long w/storage shelves, \$15. 714-531-4958. C

Motorcycle, 1968 650 Bonneville, \$95. 213-756-4975. C

Mini Bike, Bonanza, 3 h.p., \$150. 213-676-4875. C

Organ, Thomas elec., dble. keyboard, walnut finish, \$350. 213-324-2406. C

Aquarium, Pemcco, w/pump, filter, other access., \$15. 213-322-4810. C

Mobile Home, 20' x 55', 1965, 2-bdrm., 2 baths, screened redwood porch, carports, awning, in adult park, \$10,500. 213-634-5078. C

Pup, Pomeranian, AKC reg., red female, \$95. 213-834-2341. C

Ring Set, diamond, size 7, \$50. 213-753-6277. C

Home, 2-bdrm., beam ceiling den, cpts., dps., near State College, L.B., \$23,900. 213-436-1691. C

Cemetery Lots, Inglewood Park, dble. interment & endowment care, 2 spaces, \$700; 2 adjoining, \$1,300. 714-842-1169, 213-327-2939. C

Engine, 1960 T-Bird 352, 300 h.p., \$65. 213-325-4390. C

Tent, umbrella center pole, 9 x 11', \$30. 213-346-3751. C

Motorcycle, 1969 Kawasaki 120 cc, dirt ready, many extras, \$425. 714-494-6940. C

Tent Trailer, 1968 Apache, \$625. 213-534-3518. C

Bowling Ball, ebonite, \$5. 213-376-4831. C

Wheels & tires, 15" Pontiac, 16" Plymouth, others, \$20. 213-329-3286. C

Ski Boat, 14', S.K. hull, all fiberglass, 40 h.p. Mercury eng., trailer, \$550. 213-370-8997. C

Mobile Home, 12' x 60' front living rm., 2-bdrm., awning, in Ventu Pk. Villa, Newbury Pk., \$4,995. 805-482-2461. C

Receiver, Hi-Fi, Harman-Kardon AM/FM tuner, preamp, 20 w. amplifier, \$70. 213-326-8455. C

Lawnmower, manual, 16" blades, 6 mos. old, \$10. 714-968-2780. C

Patio Awning, alum., 9' x 14' never assembled, \$150. 714-589-9503. C

House, 3-bdrm., 2 baths, f/place, patio, 5 yrs. old, Torrance area, \$26,500. 213-830-1294. C

Tape Recorder, stereo, Akai-Roberts, \$160. 714-523-2495. C

Acreage, 2 1/2 acres, Antelope Valley, \$29 dn., \$29 mo., no int., \$2,900. 213-378-1026. C

Ski Boots, Kastinger-Austrian, size 6 1/2, worn 3 times, \$35. 714-772-8254. C

Honda, 1965 150, needs eng. work, \$40. 213-373-5041. C

Tape Recorder, used 3 times, 2-spd., 4 plain tapes incl., \$25. 213-372-4605. C

Hurst Kit, 3-spd., for Chev., \$15. 714-838-7161. C

Boat, 16' Sea Hunter, 30 h.p. Mercury eng., trailer, \$495. 213-679-6917. C

Stone Material for rocks & gems & fossilized items, \$75 or sell sep. Box 1002. C

Slide Rule, Pickett Mod. N4-ES, Vector-type, log log, \$15. 714-962-1143. C

Radio Stations, amateur-type, fixed & mobile, Swan 350 w/power supplies, other access., \$650. 213-867-0662. C

Outdoor Motor, Evinrude, 3 h.p., folding-type, w/carrying case, \$150. 213-545-6719. C

Fireplace, black, gas or wood, w/logs & gas burner, 1 yr. old, \$100. 213-370-4045. C

Motorcycle, 1967 Bridgestone, 50 cc, elec. starter, \$125. 213-644-9079. C

Motorcycle, 1968 Hodaka, 100 expansion chamber, dirt access., \$350. 213-671-1012. C

Car Board, all access., \$5. 213-345-3195. C

Air Conditioner, 5,000 b.t.u., Sears, \$35. 213-327-5376. C

Kittens, Siamese, 7 mos. old, all shots, \$25. 213-372-4691. C

Motor Scooter, Lambretta, 150 cc, \$325. 213-676-3784. C

Own Your Own Apt, 900 sq. ft., upstairs, carport, bltins, cpts., dps., pool, \$15,750. 213-674-7743. C

Bicycle, Higgins-Sears, girl's, 24", \$20. 213-675-3431. C

Radio, Craftsman, AM-FM w/AFC control, hi-fi amp. & spkrs., Webcor record player, in walnut cabinet, \$75. 213-675-2514. C

Swim Pool, Doughboy, 25'x4', new liner, filter, access., \$195. 213-370-0990. C

Camera, F-2 Nikon 35mm range finder, \$125. 213-454-8147. C

Motorcycle, 1968 Yamaha, 180 cc, elec. start, \$450. 213-534-1028. C

Miscellaneous For Sale

Tennis Racket, T-2062, new Wilson Kramer Autograph, strung vantage nylon, 4 1/2 light, \$18. NRC ext. 2486. C

Marine Engine, 1560 Ply. 318 cu. in., hydraulic trans., \$600. 213-367-7131. C

Trailer, 19', self-contained, 1-60 Oasis, \$1,300. 213-328-2954. C

Motorcycle, Triumph, 1968, 500 cc, extra chrome, \$950. 213-860-5059. C

Wanted to Buy

Opel, 1967 or 1968, 2-dr., in excellent cond., 213-941-6953. D

Hardtop, to fit 1961 Corvette convt. 805-947-8587. D

Gym Set, child's. 213-645-5034. L

Luggage Rack for '64 Porsche, wire style for eng. lid mounting. 213-675-1366. L

Wheelchair. 213-371-6360. L

Color Bar for TV & dot generator. 213-377-4489. D

Golf Clubs, matched set 5 irons, 2 woods, consider full set. 213-383-2587. L

Cement Mixer, prefer elec. 213-349-8128. L

For Trade

Shell bronze coins, trade set of President coins for set of Facts & Faces. 213-378-3529. L

Trade book of Blue Chip Stamps for book o. Green stamps. 213-343-6213. L

Free (To Be Given Away)

Kittens, 6 wks. old, house broken, some avail. June 14. 213-675-3130. F

Rentals Offered

Apt, 2-bdrm., unfurn., cpts., dps., air cond., pool, 4-unit bldg., adults, no pets, \$140 & up. 213-325-2512. G

Apt, 1-bdrm., cpts., dps., bltins, garb. disp., closed gar., unfurn., \$110. 213-375-9397. G

Apt, Redondo Bch, all elec. bltins, cpts., dps., patio, closed gar., bath. furn., \$135; 2-bdrm., unfurn., \$185. 213-372-2222. G

Cabins, Lake Gregory & Crestline, sleeps 6, reserve now, \$25 w/ends; \$60 wk. 213-391-2040. G

Cabin, Lake Arrowhead, close to lake & village, f/place, patio, all utils., \$65 wk. 213-887-6287. G

Bachelor Apt, furn., newly painted, \$85 mo. incl. utils. 213-329-4385. G

Cabin, Green Valley Lake, \$55 wk. 213-320-2002. G

Rentals Wanted

House, 3-bdrm., 2 baths, W. Torrance or So. Redondo. 213-370-6136. H

House, 3-bdrm., 2 baths, in Torrance or Hawthorne, after June 15, \$200 mo. 714-55-8565. H

Mobile Cruiser, or VW bus for 3 weeks, driving cross country, reasonable. Box 1003. I

Child Care

Child Care offered, my home, hot meals, So. Bay Shopping Center area, \$20 wk., any age. 213-372-5387. I

Rides and Riders

Rides Wanted

7:30 a.m. — 4:15 p.m.

Hawthorne Blvd. & Grevillea, Inglewood. Irene McCarthy, Norair ext. 5181, 213-672-7506.

8 a.m. — 4:45 p.m.

Sunset Blvd. & Brooktree Rd., Pacific Palisades. Can meet in Pacific Palisades or Pacific Coast Hwy. near Chautauqua Blvd. Jack Wiecek, Norair ext. 1022, 213-454-5985.

Hawthorne Blvd. & San Nicholas, P.V. Pen. Dr. George H. Bischoff, Norair ext. 2754, 213-377-8518.

Rides Offered

8 a.m. — 4:45 p.m.

Hawthorne Blvd. & San Nicholas, P.V. Pen. Dr. George H. Bischoff, Norair ext. 2754, 213-377-8518.

Lost

in, mother of pearl flying goose. Box 1004.

Personals

My sincere thanks & appreciation to all our friends for your kind expressions of sympathy in the loss of my husband, Whit. AGNES WHITTINGTON. L

I wish to give my sincerest thanks to all my wonderful friends for all the kindness they showed us on the passing away of my husband. CHERYL McKAY & CHILDREN. L

For Sale or Trade

Scuba Gear, used twice, \$200 or trade for small bike, 150 cc or 175 cc. 213-324-7203. M

Ventura Jaycees Host Visitors From Nicaragua

Two members of Jaycee chapters in Nicaragua visited their Thousand Oaks and Newbury Park counterparts recently and toured the Ventura Division plant. Alberto Gonzalez, an agricultural engineer, and Edmond Pal-lais, an attorney, were invited on the tour by Ventura Jaycees. The tour group included Venturan Don Spencer, a JC host, Bill Douglas, state product chairman, Alice Stewart, who acted as interpreter, and Johnnie Via, Personnel representative. Among the Ventura Jaycees who participated in the intercontinental visit were Mr. Spencer, Bob Prieve, Fred Young, Ed Swarthout, Bill Glass and Tom Dvorak.

Northrop Page Completes Communications System

The largest military communications system in the world is now complete. Northrop Page Communications Engineers—Washington-based Northrop Corporation subsidiary—recently announced completion of the ICS-SEA (Integrated Communications System—Vietnam, Southeast Asia). The system was installed in support of the Free World Military Allied Forces. It was the largest contract ever awarded by the U.S. Army Electronics Command for the U.S. Army Strategic Communications Command. The ICS consists of microwave, troposcatter, cable and satellite links and is the backbone of U.S. military communications in Southeast Asia. The system is designed to interface with equipments such as

Autovon, Autodin, dial central offices, tandem-switching networks and manual switchboards. It is capable of simultaneous transmission of voice, teletype, data and facsimile broadcast program material and all with the quality of service required by the Defense Communications Systems. Northrop Page constructed and equipped training facilities at Ft. Monmouth, New Jersey, to duplicate the equipment and transmission/reception condition in Vietnam. Each trainee receives on-the-job experience. Northrop Page is under contract to the U.S. Army Electronics Command for maintenance and operation services on this ICS-SEA project and has employed Vietnamese and many other people of different nationalities to complete this huge, complex communications system.

NORTHROP NEWS
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Japanese School Sends Special Thank You Note

Northrop Corporation's Electro-Mechanical Division has received a letter of thanks and appreciation for its \$2,500 contribution to the Nagoya International School, Nagoya, Japan.

The letter was forwarded by W. A. Rothwell, director, Northrop-Nagoya, manager of the Electro-Mechanical Division's field services with the Japanese Hawk program.

The International School is the only English-speaking school in central Japan. The school has 150 students from four countries, including children of Northrop personnel living in the Nagoya area. The school started four years ago with 80 students and has almost doubled its enrollment since.

The school will use the Electro-Mechanical Division contribution to buy new equipment.

In the letter of thanks, Peyton L. Palmore III, chairman of the school's board of directors said:

"The presence in our community of the Northrop-Nagoya employees have been a specially welcome addition because of their active interest and participation in community affairs."

Mr. Palmore added that Mr. Rothwell's work with the school has been a good example of Northrop's participation in the community and added, "This gift from your company is a further one."

ROUNDFILE VII ENDS IN SUCCESS

Operation Roundfile VII, the Aircraft Division's annual drive to eliminate the unessential paperwork, files, manuals and office equipment, has logged a total saving of \$579,880 for 1969.

Roundfile totals are tabulated for a full year, although major emphasis centers around April when a concentrated in-plant drive is held to bring the year to a successful conclusion.

Key responsibility falls to CMIP coordinators working throughout the division who coordinate the activities of special Roundfile monitors from every department and function who handle the major work in eliminating the unnecessary and recording results.

THEATRE PARTY TICKETS READY

Ticket outlets throughout Northrop facilities in the Southland are now offering discount reserved seats for an all-Northrop Theatre Party set for 5 p.m. June 29.

The motion picture feature is "Krakatoa East of Java," a first-run Cinerama production slated for the Pacific Cinerama Dome Theatre, 6360 Sunset Blvd., Hollywood.

Regular \$3 reserved loge seats sell for \$2.40 each; reserved orchestra seats, normally \$2.50, sell for \$2.

Steyer Captains Winners In Ventura Bowling Loop

A team captained by Wes Steyer and including his wife, Lou, and Ed and Norma Burd, has won the Northrop Ventura Mixed Four bowling league at the Conejo Village Bowl in Thousand Oaks.

The league was sponsored by the Northrop Ventura Recreation Club.

Receiving second place trophies at the recent conclusion of



GEORGE LEADBETTER, center, of the Aircraft Division was known as "Mr. Canopy" to major subcontractors who supplied windshields and canopies for Northrop aircraft. The senior buyer retired recently and received a miniature F-5 windshield from Sierracin Corporation, presented by Herbert Hoover III, left, and Ramsey C. Armstrong. Friends at Goodyear Aerospace Corporation presented him a humorous drawing, while his Northrop friends gave him a loader for shotgun shells as farewell gifts.

Farewell Parties Honor Northrop's 'Mr. Canopy'

Around Northrop he was known as a senior buyer in Major Subcontracts, although the employees of at least two Norair subcontractors referred to him simply as "Mr. Canopy."

Call him what you like, but George Leadbetter did make a lot of friends, for Northrop and himself, as a trio of celebrations on the eve of his recent retirement attest.

Since the late 1950's, Mr. Leadbetter served as a buyer for many types of components and hardware, although he was a specialist in windshields and canopies for supersonic Northrop aircraft.

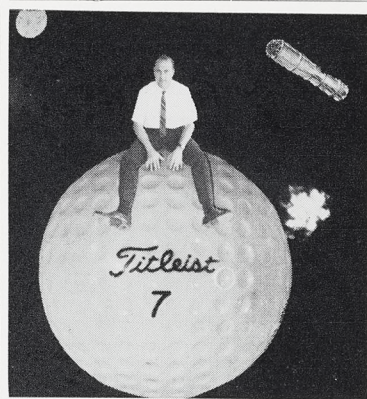
Northrop friends of Mr. Leadbetter bid him adieu at a farewell

party and gave him a loader for shotgun shells to use in one of his favorite hobbies.

At Goodyear Aerospace Corporation's Litchfield, Arizona, facility, friends there gave a farewell luncheon in his honor and presented him with a humorous painting. It depicted him riding forth to fish in a boat shaped like a rejected canopy.

Sierracin Corporation employees presented him with a one-of-a-kind trophy, a miniature F-5 windshield, with a plaque proclaiming "in recognition of a long and respectful relationship."

Mr. Leadbetter is shifting his residence from the Southland to the north where hunting and fishing offer greater promise the year around, friends report.



HOLE-IN-ONE — Jim Donahue, senior engineer, Electronics Division Inertial Measurement unit, was "out of this world" after he scored a hole-in-one on the ninth hole at El Rivino Country Club. Jim made his ace while competing in the monthly Electronics Division NRC golf tournament.

VETERANS

(Continued from page 1)

Warren A. Treharne and Carlos Uribe of Manufacturing; Maxine P. Boyer, Margaret B. Crumbliss and Robert Robinson of Quality Control; Robert F. Snyder and Robert W. Suggs, Jr. of Cost Estimating; James S. Hamilton of Final Assembly-Palmdale; Jack E. Fisher of Advanced Production; Henry B. Jackson of Plant Protection; Pearl I. Sims of Materiel; Max R. Stanley of Flight Support Operations; Harold L. Taylor of Timekeeping; and Max Windmiller of Graphics.

Eleanor Porter Joins Husband In Retirement

Eleanor Porter, an Electro-Mechanical Division employee since 1952, retired in May to join her husband, Joe, who retired as a Northrop machinist two months ago.

The Porters are building their own desert home in Joshua Tree, a settlement on the edge of Joshua Tree National Monument.

"Then we'll carry back all the rocks we've been carrying out of the desert for the last 20 years," Mrs. Porter said with a smile.

Both she and her husband have been enthusiastic members of the NRC Gem and Mineral Club since its formation. They have an extensive collection of rocks and gem stones.

She has the NRC Club to thank for her desert retirement.

"I thought one would have to be crazy to live out there," she said. "Then when I saw the beautiful samples the Rock Club members were collecting, I got started rockhounding myself. Then I learned to appreciate the desert. I especially love the vivid sunsets, the deep purple evenings and at night the stars seem so close."

Mrs. Porter joined Northrop in 1952 as a mechanical assembler because she heard Joe bragging about the company so much.

Mickey Judges County Science Fair For 5 Years

Judging the Ventura County Science Fair for the fifth straight year—as long as the event has been in existence—was Fred Mickey, a Ventura Landing Systems engineer.

Mr. Mickey judged the senior physical science category which was won by a Simi Valley girl who designed and built an ornithopter. Also judging senior physical science were a UCLA professor and Navy Missile Test Center (Pt. Mugu) official.

The ornithopter is a device which flies by flapping its wings. The craft had a four-foot wingspan and engine which made the wings flap.

Variety was evident in the six entries judged by Mr. Mickey at Fillmore High School. Second and third, respectively, were an experiment which measured the speed of sound underwater to determine the salinity level and an interplanetary landing craft which was designed to measure environmental conditions and radio the readings back to earth.

The third place finisher won first two years ago, went on to win the Ventura County Fair competition and top Southern California prize. It was subsequently displayed at an AIAA conference.

Mr. Mickey was praised for his "excellent participation" and generosity of time in judging in a letter from Dr. William B. Plum of the U.S. Naval Civil Engineering Laboratory at Port Hueneme. Dr. Plum was chairman of the physical sciences judging.

Mr. Mickey has been with Northrop six years.



WINNERS—Winning the Northrop Ventura Mixed Four bowling crown at the Conejo Village Bowl was this team. From left, Ed Burd, Lou Steyer, Norma Burd and Wes Steyer.

NORTHROP NEWS

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Allen Leads Suggesters For Month

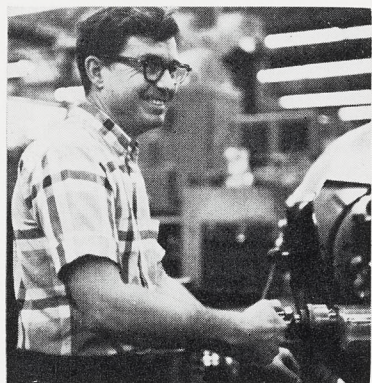
John Allen, Machine Shop, led the month's suggestion award winners at the Electro-Mechanical Division, according to Larry King, Suggestion Award administrator.

Mr. Allen received \$185 for a proposal to use a set of rings to replace dial bore gages to check diverter valves. Previously the gages were set in the tool crib, requiring an operator to make several trips to the crib each shift. The rings permit operators to check bores without leaving their machines.

The largest number of awards to a single person went to Earle B. Davis, Sr., Ordnance Fabrication, who was honored for three ideas. He earned \$10 each for an idea for an adjustable stop for a chuck, a suggestion for a positive stop on an air chuck and an idea to fabricate adjustable chuck spiders or adjustable size adaptors.

Second highest award went to J. D. Feathers, Ordnance Mechanical Maintenance, for a suggestion to replace a bucket elevator at Page Court with a conveyor belt.

Douglas Milburn, Ordnance Electrical Maintenance, proposed



John Allen

a permanent steam cleaning operation. It utilizes available steam from the Y-42 boilers. This eliminates renting a portable steam cleaner.

In addition to these awards there were seven others under (See SUGGESTIONS, page 6)

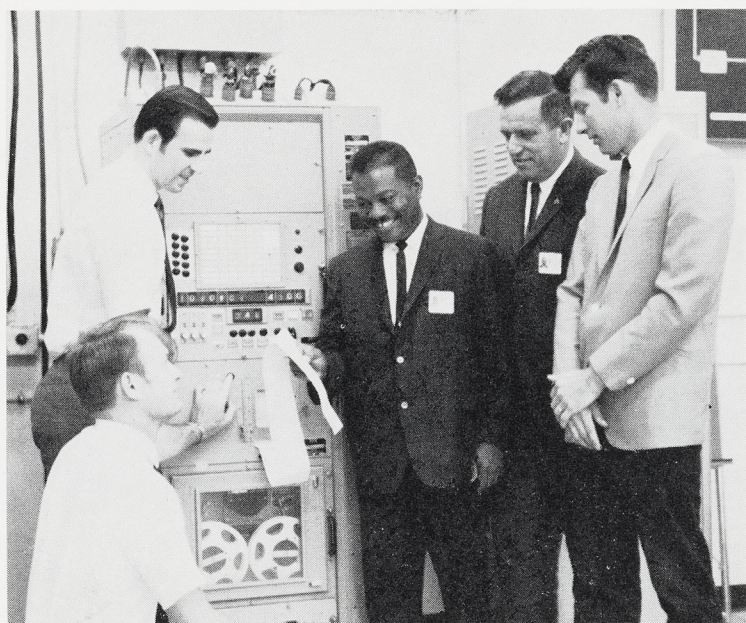
FAMILY PICNIC SET FOR AUGUST

The Electro-Mechanical Division's annual family picnic will be held August 24, according to Randy Lee, chairman of division Special Events Committee.

The company outing is sponsored by Northrop Recreation Clubs and will be arranged by Picnics, Inc.

Festivities will begin at 10:30 a.m. at Swiss Park, Duarte, and will end at 5 p.m. The program will include games, contests, and a magic show. In addition there will be swings, clowns and refreshments.

Tickets will be 25 cents for Northrop personnel and their families. Guest tickets are 50 cents. Availability of tickets will be announced later.



CHECKING OUT the AN/SSM-5 Monitor Test Set (TEAMS) which was recently integrated with an Air Search Radar System at the Long Beach Naval Shipyard are from left, Peter Leibert, kneeling, Tom Boylan, Dick Hill, Wes Toy and Don Decker. They are shown examining the tape print from the TEAMS central processor showing results of the monitor tests.

Three Receive National Merit Scholarship Awards

Three children of Electro-Mechanical Division personnel were among the eight 1969 National Merit Scholarship winners at Northrop.

The scholarships are provided by Northrop, but selection of the winners is done by the National Merit Scholarship Corporation, a non-profit educational organization. They are awarded on the basis of a competitive examination.

The winners were:

Richard E. Shelton, 17, whose father is George Shelton, senior engineer, Research and Development group, Automation Systems section. Richard was Chemistry Student of the Year at Savannah High School, Anaheim, president of the California Scholarship Federation, member of the Math Team, member National Honor Society and received the Rensselaer Award for mathematics and science. He plans to attend the University of California-Ir-

vine as a pre-medicine major.

Kathryn (Cappy) Lynch, daughter of Frank W. Lynch, vice president and general manager, Electro-Mechanical Division. In addition to being valedictorian of her class, at Corona del Mar High School, Cappy was co-editor of the yearbook, student body secretary for the first half of her senior year, member of the American Field Services, four-year member of the California Scholarship Federation, and was voted "Most Intelligent Girl" by her senior class. She will use her scholarship to attend Stanford and major in English.

Judy E. Rothstein, daughter of Dr. Lewis R. Rothstein, chief scientist at Northrop Carolina. Judy will use her scholarship to attend the University of North Carolina. Present to see her receive the award was her sister Susan who was a 1966 National Merit Scholarship scholar and is

(See SCHOLARS, page 6)



NATIONAL MERIT SCHOLARSHIP winners and their parents from Anaheim, left, are Mrs. Frank Lynch, Kathryn (Cappy) Lynch, Frank W. Lynch, Richard B. Shelton, Mrs. George Shelton, and George Shelton. At right the Northrop Carolina winner,

TEAMS Integration Completed at Shipyard

Successful integration of the AN/SSM-5 Monitor Test Set (TEAMS) with the AN/SPS-40A Air Search Radar System was recently completed at Long Beach Naval Shipyard.

This test program demonstrated the ability of TEAMS to operationally monitor the AN/SPS-40A radar and perform comprehensive fault and failure isolation. The radar change kit, designed within the Automation Systems section, is now ready to be issued for fleet use.

Short Time

Completion of the test program in April marked the success of an accelerated schedule for the design, manufacture and testing of the AN/SPS-40A field change hardware. The original schedule requirement for the hardware was 18 months. However, due to current scheduled installation requirements aboard the destroyer escort ship, USS Hepburn (DE-1055), the entire program from design to test was completed in only 12 months. The formal test program was conducted during March of this year with both Navy representatives and Northrop personnel participating.

This was the third shipboard radar system to successfully complete its technical evaluation with

the AN/SSM-5 system. The other two technical evaluations were the AN/SPS-10F completed at the Electro-Mechanical Division, Anaheim, and the AN/SPG-53A completed at the Fleet Training Center, San Diego.

"The TEAMS was conceived and designed to monitor the overall performance of electronic systems and to detect out-of-tolerance conditions and isolate malfunctions in vital ship surveillance equipments," Pete Leibert, project engineer, TEAMS Project branch, said. "The DE1055 class will be the first ships to have a continuous performance monitoring on multiple systems."

This continuous monitoring will increase the reliability and durability of shipboard radars and increase over-all performance during ship's operation.

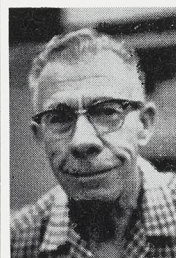
Harrington Will Spend Retired Years Fishing

James P. Harrington, tool control man at the Electro-Mechanical Division, will retire on July 1.

Mr. Harrington came to work at Anaheim in April 1959 after previously working 21 years with Studabaker and two years with Rheem Manufacturing. Since joining Northrop he has worked in tool control except for two months with Y-2 assembly.

Both Mr. Harrington and his wife, Dolores, are ardent fresh water fishing enthusiasts.

"And that is where you will find me after I retire—out in a trout stream," he said with a smile.



Mr. Harrington

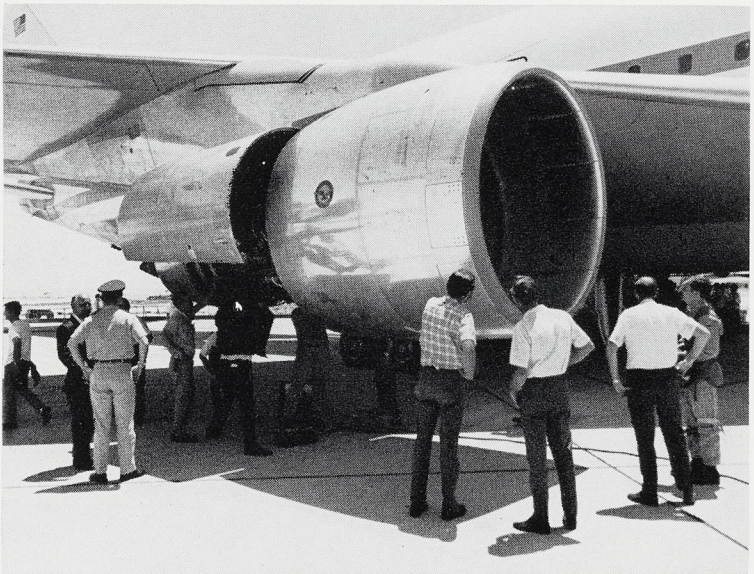
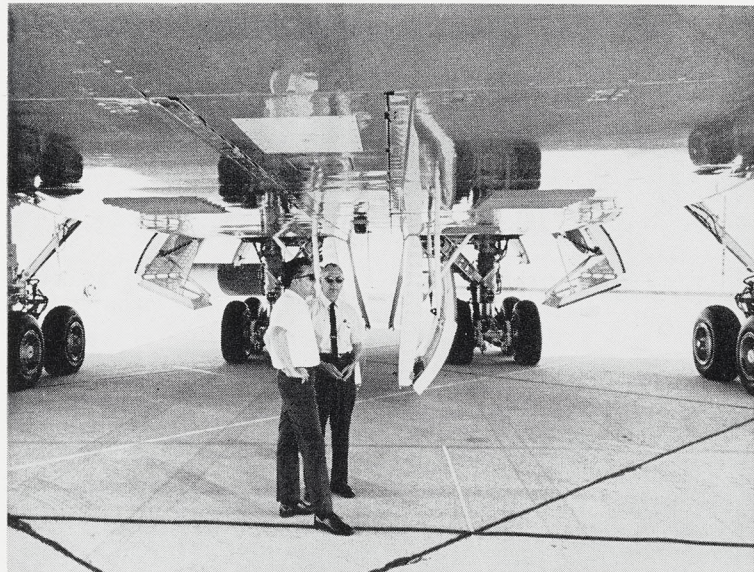
ELEVEN GIVEN SERVICE PINS

Electro - Mechanical Division personnel who became eligible for service pins in May include Felix R. Jones, Alan Dudacek (Palos Verdes assignment), and Henry Thomas, all of whom completed 20 years with Northrop. Fifteen-year veterans are Norio Mitsuoka and Clifton D. Dunham.

Those finishing 10 years were Christopher Guzzetta, Imogene Sims, Wayne A. Trenholm, Ervin E. Jechel, Maxine D. Merrill and Donald R. Porter.



Judy Rothstein, second from left, is shown with her sister, Susan, previous scholarship winner. With them, left, are J. M. Ricketts, president, Northrop Carolina, and her father, Dr. L. R. Rothstein. Northrop sponsored eight National Merit scholarships this year.



BOEING 747 No. 2 paid a brief visit to Edwards Air Force Base late last month to conduct R.T.O. (Refuse Take Off) tests in which the giant aircraft races along to take off speed then applies brakes to check emergency stopping capability. Photographer Sam Orr snapped this series of candid photos which graphically show what Northrop people have known all along—the Boeing 747 is big. From top to bottom are shots of the landing gear beneath the fuselage, the over-all aircraft and one of its engines. Aircraft attracted large number of spectators.

Contracts Let to Northrop Page For ICS Maintenance, Operation

Two contracts totaling approximately \$7,500,000 have been awarded to Page Communications Engineers—Washington subsidiary of Northrop Corporation—to operate and maintain the Integrated Communications System in Southeast Asia.

Under contract to USASTRATCOM (U.S. Army Strategic Communications Command), Page will provide logistic support, on-site maintenance, plus operation and maintenance engineering services for one year starting July 1969.

The contract for Area I covers services for Vietnam totaling approximately \$4,500,000. The Area II contract is for the Thailand portion, totaling approximately \$3,000,000. Page will also conduct an on-job training program to train military personnel in these maintenance services.

The ICS system is the back-

bone of United States military communications in Southeast Asia. Microwave, troposcatter, cable, and satellites are used to link military sites.

Page has just completed the design, engineering, and installation of the entire communications system in Vietnam.

The ICS system has increased the over-all capacity and quality of communications by expanding the facilities that were in existence prior to 1965. The system interfaces with AUTODIN and AUTOSERVOCOM terminal equipments at Department of Defense units located in both Areas I and II.

Page will provide all services required for the technical maintenance of the systems, equipments, and recoverable terminals, and will insure the effectiveness of these services.



SHOW MATES—A Northrop RF-5 reconnaissance version of the famed Northrop F-5 tactical fighter sits snugly under the wing of a Boeing 747 jetliner at the Paris Air Show. Northrop

builds the major portion of the 747's fuselage, wing-to-body fairings and aircraft flooring for the giant jetliner. Both aircraft attracted large crowds during the event.

Funeral Services Honor Army Man Killed in Action

Private funeral services were held June 9 in Torrance for Private First Class Michael K. L. Dixon, United States Army. Interment followed at Forest Lawn Cypress Cemetery.

Private Dixon, 19, was killed in action May 21 while on patrol with elements of the 199th Infantry Brigade in South Vietnam.

He was the son of Joyce Weber of the Northrop Public Relations staff and the grandson of J. J. Webb of the Aircraft Division's Maintenance organization.

Michael Dixon graduated from West High School, Torrance, in 1967. In addition to posting an outstanding academic record, he participated in school drama and speech activities and wrote poetry as a hobby. His poems were published in his school yearbook. He entered the Army in September 1968 and went to South Vietnam last March.

Survivors include his mother, Mrs. Weber, and father, William Dixon, Jr., of Boulder, Colorado, a brother, Stephen, two half-brothers, Mark and Randy Dixon, his grandparents, Mr. and Mrs. William Dixon, Sr., of Amarillo, Texas and Mr. and Mrs. Webb.



Private Dixon

NORTHROP NEWSMAKERS

Dr. M. Charles Zyetz, Electronics Division, recently discussed "Vacuum Deposited Hybrid Microcircuit Thin Film Properties" before a meeting of the Southern California section of the International Society for Hybrid Microcircuits.

K. C. Wu, Aircraft Division, has been named a member of the committee on Titanium and Titanium Alloys of the Welding Handbook, published by the American Welding Society.

Carey Buhler, Ventura, will attend the international conference and competition of the Society for the Preservation and Encouragement of Barbershop Quartet Singing in America at St. Louis, Missouri later this month. He is a member of the Reseda chapter.

J. A. Alfieri, Electro-Mechanical Division, will present a paper at a New York University. This short course, "Automation in Electronic Test Equipment Via Built-in Test and Continuous Monitoring," will be held this month. Purpose of the course is to keep government agencies and industry up to date on advances in the state of the art. Mr. Alfieri will discuss TEAMS shipboard on-line monitoring systems built by Northrop.

Henry Still, Corporate, spoke on the "Changes In Technology" at the 1969 Conference of the Western States Advertising Agencies Association, Inc., held recently on the island of Maui, Hawaii.

SIMON ATTENDS FBA SYMPOSIUM

Jerome M. Simon, Corporate legal counsel representing the Electronics and Electro-Mechanical divisions, attended the Sixth Annual Symposium on Aspects of Government Research and Development Contracts, held recently in New York City.

Mr. Simon participated in a discussion of the sensitive areas of subcontracts, including consideration of the clauses and obligations a subcontractor should or should not accept.

AF FOUNDATION SEEKS MEMBERS

All Northrop personnel interested in aviation history have been invited to become members of the Air Force Historical Foundation.

The foundation, established in 1953, is an independent non-profit corporation sponsored by the U.S. Air Force. President of the organization this year is General B. A. Schriever, USAF, Ret.

Purpose of the foundation is to preserve and publish annals of American military aviation, providing a common ground where the old timer, the scholar, Air Force personnel active and retired, and the interested citizen

can meet, discuss and consider together the successes of the past in the contest of today and tomorrow.

The foundation is maintained wholly by individual subscriptions and contributions. An annual membership may be purchased for \$5 which includes a subscription to Aerospace Historian, quarterly journal published by the foundation. Life memberships are \$100.

Anyone interested in joining the Air Force Historical Foundation may write to Building No. 819, Bolling Air Force Base, D. C. 20332.

Savings Bonds Activity Reaches 86.78 Per Cent

The month-long U.S. Savings Bonds Booster Campaign ended with Northrop personnel participation increasing from 82.6 per cent on May 1 to 86.78 per cent on June 1.

Aircraft Division, including all Corporate personnel, increased from 83.99 per cent to 87.24 per cent. Ventura was next, 76.1 to 86.2, with Electro-Mechanical close behind, 80.2 up to 86 per cent.

Next were Electronics, 82 per cent up to 84.9, and Northrop Corporate Laboratories, 79.5 up to 82.3 per cent. Total participation, including new hires and personnel who increased their investment, was 1,048.

A spokesman for the committee which coordinated the drive expressed the group's "thanks and appreciation to all who helped make the program a success."

**IS IT NEWS?
CALL EXT. 4273
HAWTHORNE**



RALPH GARCIA, club president, and **Mrs. Garcia** preside at the head table during reunion.

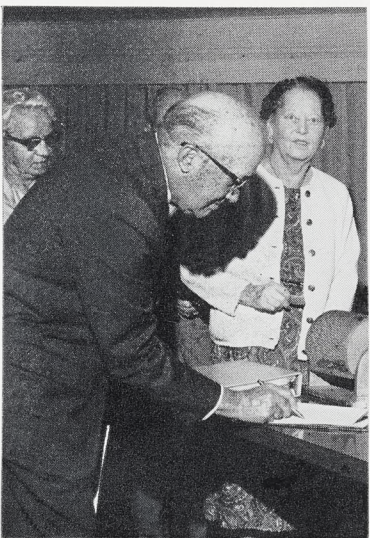


CELEBRATING THEIR 60th wedding anniversary in conjunction with the Retirement Club

Reunion are **Mr. and Mrs. Albert Beyer**, center, above.



REVEREND John Chambers discusses future club activities with reunion attendees. He has assisted club through the years.



MR. AND MRS. Weldon Ming sign the guest register at annual reunion dinner. Volunteers handled arrangements.

Reunion of Retirement Club Brings Back Fond Memories

August Blomquist had to miss his Wednesday night dance date, Jeanette Kaupp got blisters from making decorations, and Paul and Aralvi Dale just made it back from a 16-state trailer-van trip, but they and 67 others were on hand for the Third Annual Reunion of the Northrop Retirement Club.

The meeting was held at the Alondra Club to provide members an opportunity to swap reminiscences and renew old

friendships, according to Ralph Garcia, club president.

With all due respect to a fine dinner and games, the most popular activity was finding out what old friends were doing. According to records kept by Walt Brophy, club members are scattered over 25 states, Canada and the Bahama Islands. Because of the distance, many could not attend, but members heard about them from mutual friends.

They heard that Ralph Colbert was now with the Job Corps in Utah, that Ed Martin was still president of the Ultra-Van Club and traveling widely, and that Leo Day was off to Wales to visit his sister.

The last story brought nostalgic memories to Happy — "Don't call me anything else because that's what I am" — Prince. Mr. Prince was born in Wales and came to the United States 55 years ago.

James Curran told about working on the N-23 Flying Goose while Carl Christensen said he had been working for the last five years with the Service Corps of Retired Executives. This group furnishes counsel to small businessmen who are in difficulty. Then George Vaughn got a laugh when he told friends that he retired on February 29 and only gets to celebrate his retirement every four years.

The biggest cheer of the evening went to Albert and Marie Beyer who celebrated their 60th wedding anniversary that week. Mr. Beyer worked in the Norair Mockup department

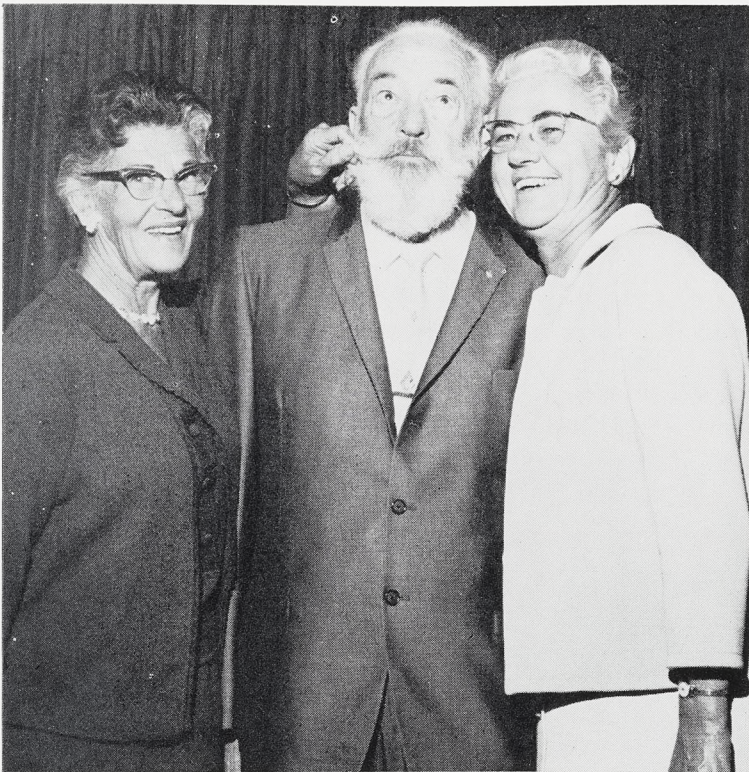
and retired in 1957. They were married in 1909 in Sheboygan, Wisconsin.

Following the social period and dinner, the retirees heard Harry Clagett, deputy manager of Brown and Root-Northrop, discuss the Apollo program.

The Retirement Club has 820 members, 300 of whom are active and attend meetings at the NRC Clubhouse, according to Mr. Garcia. Those who cannot attend keep in touch through a club newsletter, edited by Mrs. Kaupp.



PRESIDING at club register are from left, **Mrs. Ralph Garcia**, **Alvera Hayes** and **Jeanette Kaupp**.



OH LA LA!—A fine crop of whiskers sported by **John Merrit** draws admiration of **Millie Snell**, right, and **Ione Bucher**. Evening's entertainment included bingo, games, dancing and a discussion of the Apollo Program.



RETIREMENT CLUB officers discuss meeting with **Harry Clagett**, principal speaker, seated right. They are from left, **Walter Brophy**, **Jeanette Kaupp**, **James Curran**, **George Vaughn** and **Ralph Garcia**.



'UNDER B NUMBER'—A favorite group activity enjoyed at the Retirement Club reunion was bingo, shown being enjoyed by a portion of those attending. Third annual affair was held last month at the Alondra Club, Lawndale.



PRESIDENTS of the Northrop Retirement Club wait in serving line with **Frank Smith**, right, Corporate director of Industrial Relations. They are from left, **Walter Brophy**, **Ralph Garcia**, **Jeanette Kaupp** and **Norbert Lorenz**.

WHAT DO YOU THINK?

Do You Feel That Baseball Is Beginning to Lose Its Appeal



Mr. Cary

George F. Cary, supervisor, Manufacturing Control, Aircraft Division:

Not when the New York Mets can draw 39,000 fans to a game on Monday night. I'd rather see a hitting game over a no-hitter, but no matter what the case is, baseball is still tops in my book.

Nancy Ukkestad, secretary, Ventura:

No, not at all. My husband went to a big league game the other night and it was so crowded they had to turn away thousands of people. I watch it on television with my husband and I know a lot of people who like baseball.



Mrs. Ukkestad



Mr. Forlastro

Daniel Forlastro, general machinist, Tooling, Electro-Mechanical:

I think it has lost its appeal. It's too commercial. It's lost its color and not exciting like in the old days. Football has taken its place as far as I am concerned.

Mary Gschwend, secretary, Electronics:

I think the appeal has been cut down, at least in Los Angeles. Since Maury Wills was traded and Sandy Koufax retired, there's not much personality left on the team.



Mrs. Gschwend



Miss Truitt

Susie Truitt, secretary, Aircraft:

I don't think it is. Baseball is too much a part of the American way of life. As soon as kids are old enough they always seem to want to be a baseball player and wind up playing in the Little League. When they get older, they sit back in their chair and watch the game on television. No, baseball will never lose its appeal.

Cliff Mileham, shipper, Ventura:

No, because of the sportsmanship involved it is bound to be a good thing and will continue to be. Only when sportsmanship is lost will people lose interest. I think sportsmanship is the biggest selling point in any game.



Mr. Mileham



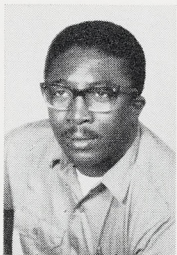
Mrs. Van Delden

Jennie Van Delden, IS&E clerk, Electro-Mechanical:

Not with me. I don't know about the rest of America, but I'm still a strong fan. We may have a losing streak here in Anaheim now, but you just wait. We'll come out of it.

James Autrey, Maintenance section, Electronics:

I think the expansion teams entering the Major Leagues cause the game to become a little uninteresting. Each time a new team enters the league the talent is spread too thin, resulting in a couple of very strong teams and too many weak teams.



Mr. Autrey

INDY 500 RACE FILM TO BE SHOWN

Northrop Sports Car Club has made special arrangements to show films of the 1969 Indianapolis 500 Race at its 7:30 meeting June 25.

The all-color show will be presented at NRC Clubhouse located at 12626 Chadron, one block north and west of Crenshaw Blvd. in Hawthorne.

HE WOULD RATHER FLY

Air Race Film Made by Adam Robbins

"The Pilot," a film about Darryl Greenamyer, winner of the National Air Races Unlimited Division for the past five years, will soon be completed by a man who wished he could have been in the cockpit rather than behind the camera.

"I wanted to put together a film that would somehow convey what it's like to race an aircraft at 430 miles per hour at only 30 feet above the ground," said Adam Robbins, Electronics Division Product Support group engineer and maker of the film.

The film is in the final sound-editing stages. It should be completed prior to this year's National Air Races, scheduled during September at Reno, Nevada.

In the two and one-half years he has spent making the film, Mr. Robbins estimates he has spent more than \$15,000 for film, camera rentals and operating expenses.

"I guess that's not really too much when you consider the engine alone, on Darryl's plane cost in excess of \$20,000. The total airplane is worth approximately \$40,000," he said.

Mr. Robbins first got interested in air racing in 1964, the year the National Air Races were re-activated at Reno. "I went up with a friend and got hooked on racing completely," he says with a smile. He holds a commercial pilot's license with heavy multi-engine rating.

Although he has never actually flown in an air race by himself, he believes that the sport is a "uniquely liberating experience."

Because of this feeling, Mr. Robbins said he has placed very little narrative on the film. "I don't believe you can orally explain why a man would want to race an aircraft for little or no return on his investment. However, I do feel this can be done visually," he said.

To keep the film as realistic as possible, most of the action shots were filmed by Mr. Robbins during actual races. "At one time I

had four cameras operating on the plane at the same time. This gave me the opportunity to film every possible angle of flight."

The aircraft flown by Mr. Greenamyer was originally an F-8F Bearcat. But it has since been so highly modified that it now has its own place in Jane's "All the World's Aircraft," a semi-official world aircraft directory.

The National Air Races are held once a year. The setting is an eight-mile oval course with six pylons. The closer the pilot comes to the pylons (and the ground), the better his speed and chances of winning.

The world's record for a single engine propeller aircraft over a flat three kilometer course is held by a German Messerschmitt airplane which attained a speed of

470 mph.

"During an assault on the world's record," said Mr. Robbins, "Darryl hit speeds in excess of 500 mph, but was unable to qualify for the record because four of the engine's pistons melted under the strain."

"At the time," he continued, "I was standing under the speed course shooting films. When he (Greenamyer) passed over me, the airplane's engine was turning so fast it sounded just like a jet."

Mr. Robbins said he received valuable technical assistance in producing the film from several people, including Norair's Bill Wyper, chief of Motion Pictures.

After he sells the film he plans to buy an aircraft, modify it for competition, and race against "The Pilot."



RECORD HOLDER—Darryl Greenamyer pilots his modified F-8F "Bearcat" in a tune-up for this year's National Air Races, scheduled for September at Reno, Nevada.

Martin's Photo Displays Featured in L.A. Times

Photography, like any other visual art form, is better enjoyed and appreciated by the onlooker when it is attractively displayed.

So rather than display his photographs in the standard framing techniques, Derald (Curly) Mar-

tin uses photo blocks to form different shapes and relationships.

"Photo blocks make the Martin living room (in Westlake Village) more fascinating and individualistic," says a recent story in Home Magazine, a Sunday supplement to the Los Angeles Times.

Mr. Martin is supervisor of the Arts and Graphics branch at Northrop Ventura. He has been with the division 15 years, beginning at Radioplane in 1954.

A graduate of the Art Center College of Design in Los Angeles, Mr. Martin's vocation of photography is also his chief hobby. But the vocational end is now "98½ per cent" administrative, he notes.

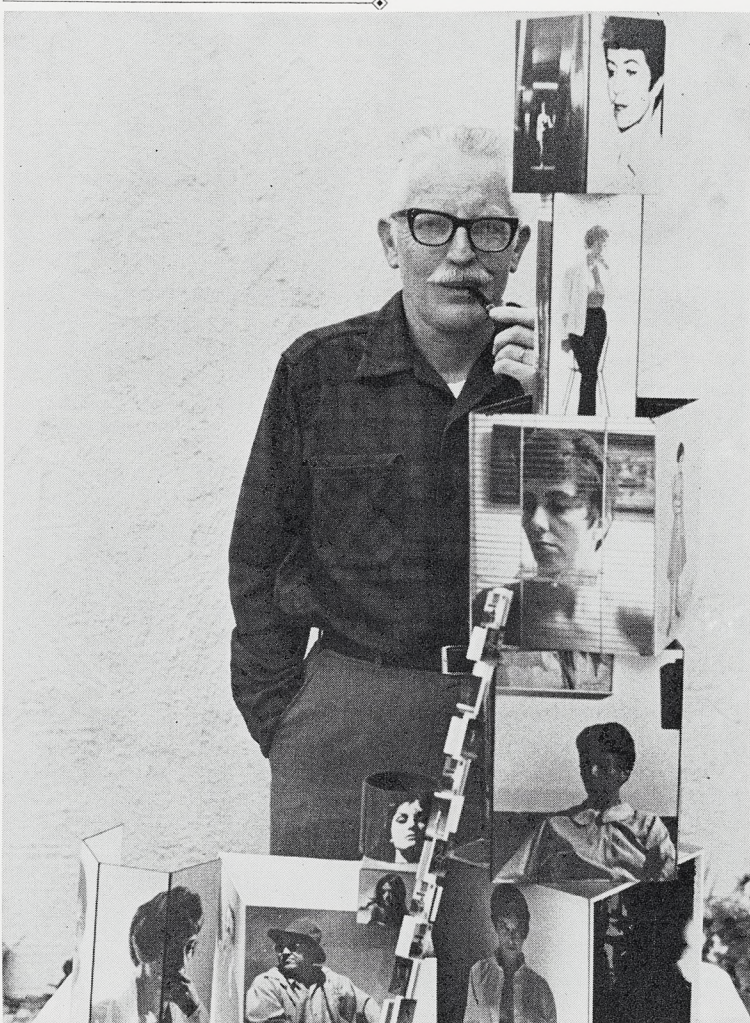
Mr. Martin's photographic work has appeared in trade journals and photographic annuals around the world, including a 14-page layout in a French annual.

He is skilled in the use of many cameras. "But most of the pictures in this display were made with a 4 by 5 Speed Graphic or 35 millimeter camera."

The photo blocks, which vary from 11 by 14 inches to small 35 mm proofs which are 1 by 1½ inches, can be arranged and re-arranged in a number of imaginative ways.

"It's a different form of composition," he told the Times writer. "Instead of working all on one plane, you're working on two or three."

And while most of Mr. Martin's photo block subjects are professional models, he also makes pictures of his wife, four children and grandchild.



DISPLAY IDEA—Derald (Curly) Martin with his unique photo display. (Photo by Ernest Reshovsky)

Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

Pontiac, 1966, \$1,100 fact. access., cust. 4-track stereo tape, \$2,195. 805-947-8587. A

Volkswagen, 1965, r/h, \$975. 213-325-9530. A

Austin Healey, 1960 Sprite, full race Morris eng., \$900. 213-379-6404. A

Dune Buggy, VW, glass body, \$950. 213-370-2876. A

Cadillac, 1962, 4-dr., \$750. 213-755-8298. A

Chevrolet, 1956, 2-dr. h/top, no eng. or trans., Olds rear end, set up for Olds eng., \$40. 213-677-5109. A

Volkswagen, 1967, 32,000 mi., \$1,450. 213-374-4922. A

Chevrolet, 1966 Impala, p/s, p/b, air, \$1,550. 213-695-8349. A

Volkswagen, 1967 fastback, AM-FM, extras, \$1,600. 213-323-8089. A

Volkswagen, 1967 deluxe sedan, r/h, \$1,395. 805-527-2848. A

T-Bird, 1961, full power, \$600. 213-677-5205. A

Volkswagen, 1968 camper, Sundial, \$28,000. 213-372-4691. A

Ford, 1965 Galaxie XL, 4-spd., \$1,150. 213-329-4224. A

Plymouth, 1969 Roadrunner, extras, auto., \$3,200. 213-676-1085. A

Pontiac, 1967 Le Mans, full power, air, many extras, \$2,150. 213-675-9735. A

Oldsmobile, 1963 Holiday 88 Dynamic, 4-dr., \$425. 213-826-3035. A

Triumph, TR-250, 1968, many extras, \$2,690. 213-241-0326. A

Mustang, 1966 fastback GT, auto., p/s, d/brakes, Hi-Perform. eng., \$1,575. 213-391-9425. A

Corvette, 1960, 283", h/top, \$975. 213-644-9359. A

Chevrolet, 1957 convt., V-8, r/h, p/s, p/b, \$215. 213-823-3418. A

Sunbeam, 1967 Alpine, r/h, tonneau, \$1,750. 213-547-1804. A

Mustang, 1966 GT h/top, 4-spd., r/h, power d/brakes, many extras, \$1,300. 213-675-2514. A

Plymouth, 1963 Sport Fury convt., V-8, 361 h.p., r/h, p/s, p/b, \$700. 213-325-4648. A

Volkswagen, 1968, 17,000 mi., radio, still in warranty, \$1,500. 213-325-1075. A

Corvair, 1962 coupe, auto. trans., \$350. 213-848-3413. A

Comet, 1963 4-dr. sedan, auto. trans., r/h, \$600. 213-376-3156. A

Chevrolet, 1966 Impala, custom whls. & steering whl., stereo tape, \$1,700. 213-644-9129. A

Dodge, 1964 Polara, convt., r/h, \$795. 213-473-1568. A

Triumph TR-3, 1959 convt., o/drive, \$975. 213-329-4402. A

Station Wagon, 1964 Dodge 440, V-8, auto. trans., p/s, 318 cu. in. eng., \$800. 714-637-4067. A

Ford, 1966 Bronco, 4-wheel dr., 289 cu. in. V-8, free-wheeling hubs, r/h, many extras, \$1,950. 714-847-2648. A

Volkswagen, 1956, rebilt. eng., \$300. 213-398-2103. A

Mercury, 1969 Marauder, p/s, p/b, p/w, hvy. duty susp., tape stereo, a/c, take over \$139 mo. pymts., \$4,000. 213-672-3300. A

Skylark, Buick, 1962, p/s, p/b, \$595. 714-847-9704. A

Porsche, 1966, 912 coupe, 4-spd., \$3,800. 213-779-2441. A

Volkswagen, 1966, 1300 Series, new tires, radio, \$1,250. 714-962-8928. A

MGB, 1965, AM-FM radio, wire whls., needs front hood & grill, 4-spd. roadster, \$970. 213-734-6164. A

Chevrolet, 1956, stick shift, r/h, chrome whls., \$300. 714-544-4955. A

Oldsmobile, 1963 Super 88, a/c, p/s, p/b, transistor ignition, Frantz filter, \$975. 213-326-6195. A

Pickup Truck, 1967 Dodge, a/c, r/h, w/camper shell, sleeps 2, \$1,800. 213-532-7175. A

Ford, 1965 Ranchero, 289 cu. in. w/Cruise-O-Matic trans., \$1,325. 714-828-2366. A

Corvette, 1965 Sting Ray fastback, 327/365 h.p., 4-spd., a/c, p/windows, posi-trac, \$2,700. 213-831-4586. A

M.G.B., 1964, 40,000 miles, rebilt. eng., \$1,250. 213-425-6986. A

Station Wagon, 1969 Datsun, p/b radio, roof rack, a/c, \$2,500. 714-968-5343. A

Dodge, 1967 108 van, ¾-ton, V-8, auto., \$1,995. 213-532-9784. A

Station Wagon, 1963 Chev. Bel Air, 327 V-8, p/b, p/s, auto. trans., elec. tailgate, roof rack, \$695. 213-762-2284. A

Chevrolet, 1956, 4-dr., 3-spd., w/Muntz stereo, chrome whls., \$300. 213-534-1696. A

Corvair, 1965 Corsa Spider, 4-spd., \$1,100. 714-893-2309. A

Automobiles For Sale

Mustang, 1966 fastback GT, V-8, fact. air, 4-spd. trans., \$1,695. 213-892-7972. A

Station Wagon, 1963 Fairlane Squire, V-8, auto. trans., p/s, p/b, r/h, \$675. 213-674-7743. A

Station Wagon, 1959 Ford, V-8, r/h, auto. trans., \$150. 213-676-0432. A

Plymouth, 1967, 4-dr., largest 6 cyl., stick shift, \$1,750. 213-833-4191. A

Studebaker, 1952 Land Cruiser, 4-dr., \$225. 213-325-7806. A

Cougar, 1967, 390 V-8, a/c, d/brakes, 4-spd., \$2,100. 714-595-8891; 213-670-6742. A

Volkswagen, 1964, new eng. & uphol., radio, \$550. 213-676-8833. A

Dodge, 1968 Charger r.t., 4-spd., power d/brakes, p/s, extras, \$2,600. 213-397-4886. A

Chevrolet, 1961 Impala, 4-dr. h/top, p/s, p/b, r/h, fact. air, 283 eng., auto. trans., \$650. 213-322-3311. A

Camaro, 1967 Rally Sport, 327, radio, power, auto., \$2,100. 805-498-3036. A

Land-Rover, 1962, 4-wheel dr., 10-pass., 221 Ford V-8 eng., elec. winch, many extras, \$1,500. 714-539-2098. A

Station Wagon, 1957 Ford 312, all power, \$190. 213-325-4580. A

Station Wagon, 1959 Opel, \$125. 213-375-4345. A

Dodge, 1965 Dart, G.T., 2-dr. h/top, 6 cyl., auto. trans., p/s, \$975. 213-752-5166. A

Corvette, 1967, 427 eng., many extras, \$3,300. 213-363-3843. A

Cadillac, 1962 Fleetwood sedan, \$750. 213-645-4163. A

Mustang, 1966, h/top, full power, \$1,695. 213-324-7828. A

Dodge, 1964 Dart, 4-dr. sedan, big 6 eng., r/h, auto. trans., \$645. 213-883-4471. A

Volkswagen, 1957, sun roof, radio, \$325. 714-523-2495. A

Corvette, 1959, '65, 327, mags, 4-spd., headers, \$1,600. 213-675-8421. A

Pickup Truck, 1960 Falcon Ranchero, ¼-ton, near new eng., \$400. 213-677-4410. A

Ford, 1966, 390 eng., balanced-blue printed 427 cam, headers, many extras, \$1,500. 213-320-0304. A

Household Items For Sale

Bunk Bed set, white provincial style w/ladder, \$25. 714-531-4958. B

Lamp, cork w/coffee table & commode, walnut, \$75. 213-378-4959. B

Bunk Beds, w/6" foam mattresses, \$75. 213-326-1409. B

Breakfast Nook & table, 4' x 5' L shaped, plastic seat, needs recovering, has sep. formica-top table to fit, \$10. 213-679-2864. B

Washer, Norge, new motor, coppertone, auto., 4 spds., 2 cys., \$30. 213-679-8426. B

Bedroom Set, dble. bed, h/board, 2 night stands, 2 dressers, 1 yr. old, \$150. 213-372-2569. B

Bedroom Set, mahogany, dble. bed, triple dresser & mirror, 2 night stands, Orthopedic mattress & box spring, \$250. 213-679-5195. B

Foldup Table for portable sewing machine, \$7.50. 213-585-2053. B

Refrigerator, G.E., \$30. 213-674-6602. B

Dinette Set, Virtue Bros. Mar-proof top table & 4 chairs, \$15. 213-675-8673. B

Oven Unit, Thermador, dual, for wall installation, elec. bronze, \$40. 213-943-6469. B

Washer, Westinghouse hvy. duty, 2 yrs. old, \$65. 714-968-2780. B

Dining Room Set, 8-pc., blonde, w/lge. buffet, \$75. 213-324-3410. B

Sewing Machine, Universal De Luxe Streamline, attachments, buttonholer, \$50. 213-831-6969. B

Occasional Chairs, pr. Italian provincial, fruitwood finish, cane backs, gold velvet seats, \$100. 213-372-1632. B

Crib, mattress, 5 yrs. old, 2 crib sheets, \$15. 213-326-8455. B

Miscellaneous For Sale

Bicycle, Sting Ray, \$25. 213-941-6953. C

Skiff, 9', fiberglassed, \$25. 213-542-2098. C

Surfboard, 9' 8", \$40. 213-372-8618. C

Mufflers, 30" glass-packed, \$15. 213-672-9428. C

Pup, Great Dane, 8 wks. old, blue, \$25. 213-752-2717. C

Camping Trailer, 12', sleeps 4, 8x10 awning, \$375. 213-676-8816. C

Engine, 283 Chev. & floor stick trans., \$125. 213-329-5459. C

Top Carrier, 50" x 50", alum., w/tarpaulin, wing nut h/down, \$10. 213-865-2724. C

Motorcycle, Royal Infield, 1966 interceptor, 750 cc, \$800. 213-862-9136. C

Motorcycle, 1968 Honda, 175 cc, \$475. 213-679-4723. C

Engine, 2½ h.p. B&S 4-cy., w/auto. clutch, \$15. 213-375-8536. C

House, 2-bdrm., 1 bath, hdwd. floor, single gar., on 47' x 125' C5 lot, in So. Torrance, \$1,500 dn., bal. at 6.6%, \$18,500. 714-799-1083. C

Home, 3-bdrm., 2 baths, 50' x 196' R-3 lot, rumpus rm., 2 f/places, near Forum, Inglewood, \$29,500. 213-673-4098. C

Clarinet, Normandie Bb, \$90. 213-327-6484. C

Air Conditioner, window-type, Emerson Quiet Cool, 7,500 B.T.U. 220 V., \$35. 213-833-7722. C

Piano, spinet & bench, walnut finish, \$495. 714-539-7051. C

Camping Trailer, 1964 Little Dipper, sleeps 4, \$750. 213-830-5284. C

Miscellaneous For Sale

Desk, art metal, \$30. 213-372-5485. C

Radio, 1963 Zenith Transoceanic, port., 9-band, \$50. 213-296-2431. C

Lot, 25' x 80', level, on hilltop, all utils. in, close to Arrowbear Lake, \$2,300. 714-892-9318. C

Mini Bike, Flexo, 3 h.p. Briggs & Stratton, \$115. 213-675-9391. C

Acreage, 2½ acres in Acton near Antelope Valley Fwy., trees, new water dist., \$500 dn., \$94 mo., \$9,900. 213-377-1074. C

Radio, AM-FM Silvertone, \$10. 213-320-7166. C

Speakers, pr., Acoustic Research AR-4X, oiled walnut, \$79 pr. 213-377-3180. C

Tires, 4 560/15 Atlas rayon, approx. 2,000 miles on them, \$40. 213-429-4942. C

Traction Equipment for neck & pelvis, \$65 or sell sep. 213-882-0761. C

Acreage, near Placerville, Cal., 2½ acres, w/2-bdrm. home, f/place, \$18,750. 213-320-1573. C

Pups, beagle, AKC reg., 5 wks. old, \$50. 213-675-3931. C

Motorcycle, 1965 Suzuki, 250 cc, \$295. 213-673-0645. C

Kayak, w/paddles & cartop rack, \$50. 213-372-3827. C

Radio Control, proportional type incl. model plane, boat, or glider, \$145. 213-370-7092. C

Clock, German-made antique, made 1880-1890, \$75. 213-675-8948. C

Boat, 14' fiberglass Glasspar, \$375. 213-378-2609. C

House, 3-bdrm. & fam. rm., 2 f/places, 2 baths, cpts., dps., hdwd. flrs., all elec. kit., Orange, \$31,500. 714-633-4936. C

TV, 19" G.E., all-channel, stand, \$95. 213-758-0582. C

Surfboard, 7' 10" Mobley Pintail, \$75. 213-374-8608. C

Sailboat, 14' International, fiberglass hull, alum. mast, dacron sails, tilt trailer, \$800. 714-688-6002. C

Bathette, white, \$12. 213-320-6685. C

Metal Detector, Metrotech, transistorized, mod. 220, earphones & visual meter, never used, \$80. 213-675-2005. C

Pups, Irish Setter, 8 wks. old, purebred, \$75. 213-370-2489. C

Swim Pool, Doughboy, 12' x 4' w/ladder, used about 4 mos., \$25. 213-644-5028. C

Pup, male Labrador, black, AKC, \$75. 213-675-3557. C

Camera, H8 Bolex, 3 lens, turret w/access. & case, \$250. 213-345-3634. C

TV, b&w, 21" Packard Bell, maple cabinet, \$100. 213-679-6982. C

Boat, SK inbd., 17' Rayson-Craft, 427 Ford med. riser, hand adj. plat's, tandem trailer, \$5,000. 213-327-0074. C

Wedding Dress, size 10, veil w/crown, \$50. 213-436-1691. C

Slide Rules, Pickett 10" & 6", metal, engg. & science w/manuals, \$25. 213-323-0783. C

Motorcycle Helmet, \$15. 213-672-2338. C

Boat, 14' outbd., 25 h.p. Evinrude, glass o/wood, access., \$425. 213-867-5769. C

Outboard Motor, Sears 7½ h.p. 2-cyl., \$45. 213-838-3336. C

Camper, 8½' ½ c/o, jacks, sleeps 4, 2 yrs. old, \$795. 714-772-2898. C

Formal, pink, size 7, worn once, \$20. 714-838-4135. C

Bicycle, 10-spd. Schwinn, \$48. 213-377-4251. C

Catamaran, 13', 6' beam, 20' mast, just painted, other extras, w/trailer, \$500. 805-648-2407. C

Trail Motorcycle, Honda, 55 cc, \$95. 213-451-5330. C

TV, 19" RCA, color, portable, walnut stand, 1970 mod., \$350. 714-521-1516. C

Wedding Ring Set, ladies, ½ Kt. diamond & smaller stones, size 7, white gold, \$350. Box 1101. C

Trailer, teardrop, Sunva, sleeps 2, complete kitchen w/canopy hood, extras, \$200. 213-327-8047. C

Units, 3 1-bdrm. ea., furn., 1 lge. deluxe, Inglewood area \$34,950. 213-676-5425. C

Dog, male Samoyed, 3 yrs. old, AKC reg. w/papers, \$100. Box 1102. C

Engine, 392 cu. in. Chrysler, w/trans., both complete, \$375. 213-926-1944. C

Acreage, 2½ acres, Antelope Valley, \$29 dn., \$29 mo., no int., \$2,900. 213-378-1026. C

Baby Carriage, other items, \$25. 213-372-7994. C

Radio, AM-FM, hi-fi Grundig Majestic, record player, \$40. 213-634-3641. C

Aquarium, 15-gal., w/light & filter, \$10. 714-523-5315. C

Wheelchair, collapsible, \$50. 213-755-8629. C

Air Conditioner, window-type, 6,000 b.t.u., \$60. 213-675-1077. C

Boat, 14', Bristol T-Bird, MK 58 Merc. 45 h.p. motor, trailer, \$695. 714-897-6992. C

Mobile Home, 1967 Golden West, 24' x 57', 2-bdrm. & den, 2 baths, located in 5-Star adult park in P.V. area, washer & dryer incl., \$15,500. 213-534-0595. C

House, 3-bdrm., family rm., cpts., dps., 1¾ baths, gar., near Del Amo Center, \$31,500. 213-371-6735. C

Mobile Home, custom-built 12' x 55' Mayflower, 1 lge. bdrm., walnut paneling, cpts., alum. awnings, carport, skirts & storage chest, \$6,700. 213-320-2920. C

Table Radio, maple AM-FM, \$20. 213-675-7316. C

Adding Machine, manual w/tape, \$25. 213-545-6719. C

Miscellaneous For Sale

Organ, Conn, artist model, 2 full keyboards & foot pedals, Leslie speakers, \$1,400. 714-524-2128. C

Pistol, semi-auto., will shoot 9mm or .38 cal., \$45. 213-962-2867. C

Home, 3-bdrm., 1¾ bath, dps., cpts., oak floors, block fenced yard, sprinklers, 2 blocks from shopping, schools, \$24,500. 213-755-7695. C

Lot, Running Springs area, \$500 dn., \$22.50 mo., 7% int., \$2,000. 714-595-3013. C

Motorcycle, Honda 305, \$300. 213-352-3818. C

Heater for trailer or camper, Bernzomatic w/2 tanks of propane, \$18. 213-645-7931. C

Motorcycle Trailer, 3-rail, \$100. 213-830-8873. C

Surfboard, 10' Jacobs, \$40. 213-377-2160. C

Mare & filly, \$300. 213-424-3893. C

Trampoline, 6' x 12' Nissen professional, nylon bed w/steel frame, \$70. 213-867-0662. C

House, 3-bdrm., 2 baths, view lot, near park, \$26,000. 213-756-0328. C

Home, 5-bdrm., refrig. a/c, 3-car gar., 600 sq. ft. brick & redwd. patio, landscaped, sprinklers, fences, Agoura, near Northrop Ventura, \$36,500. 213-889-8075. C

Unicycle, 26" whl., hvy. duty, \$10. 213-672-4794. C

Trailer Hitch, fact. bolt-on for '64, '65 & '67 Chevrolet, \$5. ea. 213-323-7544. C

Wanted to Buy

Wheelchair, folding collapsible type. 213-326-0513. D

Seats, 2 front, for Econoline, plain or bucket. 213-327-5376. D

Tent, 4-man & 3 sleeping bags. 213-644-3589. D

Pup, female pug, A.K.C. reg. 213-830-2805. D

Antenna System, amateur-type, 10-15-20 M 2 or 3 element beam, rotor & tower, coax switch, dummy load. 213-373-4794. D

Amplifier, hi-fi, 20 or more watts, mono or transistorized stereo, 40 watts. 213-833-5594. D

For Trade

Cabin Cruiser, 23', 8' beam, 110 h.p. inbd., galley, sleeps 4, trade for medium size camping trailer. 805-495-3407. E

Mobile Home, 1963 Great Lakes, 10' x 60' ext., glass screen 8' x 25' patio rm., trade for home, 2 or 3 bdrm., approx. \$5,000 equity. 213-324-9989. E

Free (To Be Given Away)

Kittens, 6 wks. old, 3 male, 2 female. 213-324-2127. F

Kittens, male & female, some w/extra toes. 213-670-7940. F

Kittens, to good home, male & female, 2 mos. old. 213-370-4261. F

Kittens, 6 wks. old. 213-422-9984 days. F

Rentals Offered

Sleeping Room, pvt. entrance & bath, utils. furn., men only, near Northrop, \$45 mo. 213-676-7328. G

Home, 3-bdrm., 1¾ baths, lease, approx. 1 mile from Elect. Hawthorne, \$225 mo. 213-324-1688. G

House, 2-bdrm., Laguna Bch. ocean front, furn., pvt. street & beach, avail. summer season or lease, \$700 mo. 213-862-3027. G

Cabin, Lake Arrowhead, close to lake & village, f/place, patio, \$65 wk. 213-887-6287. G

House, 2-bdrm., unfurn., fenced rear yd., new cpt., Inglewood, \$200 mo. 213-292-9489. G

House, 3-bdrm., fam. rm., 2 baths, air cond., dps., cpts., bltins, many extras, No. Fullerton, \$295. 714-529-4788. G

Apt, 1-bdrm., furn., sub. parking, pool, bltins, custom cpts. & dps., 10 min. to Northrop, \$150. 213-644-4235, 213-670-6084. G

Cabins, Lake Gregory & Crestline, sleeps 6, reserve now, \$25 w/ends; \$60 wk. 213-391-2040. G

Apt, 2-bdrm., unfurn., 2½ baths, cpts., dps., elec. kitchen, pool, sauna, pvt. patio balcony, short term lease, near P.V. Pen. shopping center, \$300 mo. 213-377-8412. G

Rides and Riders

Rides Wanted

7 a.m. — 3:42 p.m.
Beach Blvd. & Westminster Blvd., Westminster, June Berger, Norair exts. 2905, 2906, 714-897-2161.

8 a.m. — 4:45 p.m.

Prospect & Chapman, Orange. John Brundahl, Norair ext. 1883, 714-633-9713.

Hawthorne Blvd. & San Nicholas, P. V. Pen. Dr. George H. Bischoff, Norair ext. 2754, 213-377-8518.

Cherry & 7th St., Long Beach. James G. Tromblay, Norair ext. 2188, 213-591-8967.

Inglewood Ave. & 134th St., Hawthorne. Ride needed home. Geri Courtney, Norair ext. 1641.

Los Posas & Arnell, Camarillo. Willing to meet ride anywhere in Camarillo or Thousand Oaks area. Connie Colella, Norair exts. 2521, 2522. 805-482-1816.

Rides Offered

7 a.m. — 3:42 p.m.
Beach Blvd. & Westminster Blvd., Westminster, June Berger, Norair exts. 2905, 2906, 714-897-2161.

8 a.m. — 4:45 p.m.

Hawthorne Blvd. & San Nicholas, P. V. Pen. Dr. George H. Bischoff, Norair ext. 2754, 213-377-8518.

Cherry & 7th St., Long Beach. James G. Tromblay, Norair ext. 2188, 213-591-8967.

Rentals Offered

Cottage, Ocean Bch., San Diego, near Mission Bay, \$70 wk. 714-826-2007. G

Bachelor to share house, 5-bdrm. w/2 other men, near frwys. & Anaheim facility, \$95 mo. 714-897-9407. G

Cabin, Green Valley Lake, \$30 w/end; \$60 wk. 213-324-9769. G

Cabin, Lake Arrowhead, north shore, 200 ft. from lake, \$12

Jack Blonk Honored by American Casting Group

J. J. "Jack" Blonk, purchasing agent, received the Purchasing Agent of Excellence Award from the American Casting Society, according to Don Foulds, chief, Procurement, Electro-Mechanical Division.

Presentation of a plaque and a check for \$1,000 was made to Mr. Blonk at the Castings West, 1969 Casting Exposition in Los Angeles.

Mr. Blonk's idea was to substitute a beryllium-copper "investment casting," costing 56 cents for an automatic screw machined part which cost \$1.47 each. In investment casting the part, which is smaller than a dime, is molded in wax. The wax models are then encased in a plaster mold. When heated the wax melts, leaving replica molds into which the casting metal is poured.

The cast parts are used as

"clocking devices" or connectors in a variety of Northrop assembly programs. The 91 cents an item savings on the 103,371 castings resulted in a cost reduction of \$94,067.61 so far in the program, Mr. Blonk said.

The casting, displayed at the exposition, created wide interest among the attendees who represented casting industries across the nation. In addressing the group about the casting, Mr. Blonk said, "You don't always have to think big castings to make substantial savings. I am carrying in my pocket a \$94,067.61 saving and it is no larger than a dime."

Mr. Blonk has been with the Electro-Mechanical Purchasing department for 18 years. He began at Lawndale and has been at Anaheim since the ground was broken for the first buildings.



JACK BLONK shows plaque awarded him by American Casting Society to Ray Schultz, director, Manufacturing Materials, right, and Don Foulds, chief, Procurement.

Anaheim's Industrial Growth Told In Skilling-Authorred News Article

The industrial growth of Anaheim and the part the aerospace industry, including Northrop, has played in it was the subject of an article by the Electro-Mechanical Division's Merrill E. Skilling in the Progress Edition of the Anaheim Bulletin.

In the article, Mr. Skilling, the division's chief plant engineer, traced the city's development from an economy based on citrus to an industrial complex containing 350 manufacturing firms employing more than 50,000 people.

"Most of the growth has been in the past 10 years," Mr. Skilling wrote. "In 1958 the total industries of all types were only 200 with 7,000 employees."

He added that the aerospace industry has made the greatest community impact.

"The aerospace industry has existed in Anaheim since 1951

when Northrop Corporation realized the advantages of the area and located one of its major divisions here," the article said.

Since Northrop located its Electro-Mechanical Division in Anaheim, it has been joined by others, including North American Rockwell's Autonetics Division.

The article concluded with a review of the advantages and problems of industrializing a city.

In addition to his work at the Electro-Mechanical Division, Mr. Skilling is chairman of the Anaheim Chamber of Commerce's Industrial Committee.

SCHOLARS

(Continued from page 1)

now attending the University of Michigan.

In addition to these awards to Electro-Mechanical Division people, other awards this year were:

Norair Division: Charles J. Rennie, III, son of C. J. Rennie, Jr.; Michael S. Seigel, son of Joseph J. Seigel; Mrs. Kevin Graves Steffen, daughter of Kimball M. Graves; and Craig C. Vogel, son of Robert W. Vogel.

Ventura Division: Andrew S. Landis, son of John P. Landis.

The eight 1969 NMS awards bring to 36 the total active Northrop-sponsored scholarships under this program. Northrop has awarded a total of 55 since joining the program in 1959.



CERRITOS COLLEGE secretarial students Kathleen Johnson, third from left, and Kendra Farrow, fourth from right, meet Northrop secretaries during their recent visit to the Electro-Mechanical Division as part of the Sixth Annual Technical-Administrative Secretary Day in Industry. From left are Sue Neville, Eleanor Scarsdale, Miss Johnson, Norma Schruppf,

Carole Dinnen, who coordinated the visit; Sherry Burr, Miss Farrow, Julie Peronto, Sefie Garcia and Flo Wenrich. Below, Norma Schruppf gives tips on administrative procedures to Kathleen and Kendra. Center, Sefie Garcia explains the problems of plant engineering. Right, Sherry Burr explains the difference between Marketing and other types of secretarial jobs.

Paul Faranda Is Industrial Relations Head

Paul L. Faranda, formerly manager of Employee and Community Relations for The Hallicrafters Company, a Northrop subsidiary, became director of Industrial Relations for Electro-Mechanical Division this month.

"Mr. Faranda brings to his new assignment 18 years of experience with Northrop Corporation," commented Frank W. Lynch, vice president and general manager, in announcing the appointment. "This has covered all major elements in the field of industrial relations. Since going to Hallicrafters in October 1967, he has completed the reorganization and restaffing of the industrial relations functions there."

In his new position, Mr. Faranda will have the Employee Relations responsibility for more than 3,000 employees of the division located in facilities in California, Alabama, North Carolina and Texas.

Mr. Faranda is a graduate of Occidental College where he received his M.A. degree in psychology in 1954.

SUGGESTIONS

(Continued from page 1)

\$50. Max E. Oare received \$49 for a suggestion to modify joggle dies used in Boeing 747 stringer operations to increase stability and rigidity. Lionel J. Rainville, Page Court, received \$46 for his idea to add a sheet metal chute between a conveyor belt and water wash tanks to catch material dropping into the tank. Ricki Lee Varble, Machine shop, received two awards. One for \$44 was for his idea to fabricate a tracer template which has been incorporated into the master planning and \$19 for an idea to change production planning for a part requiring a 30 degree cut to the drill area.

Mark Uhlich, Electrical Test, received \$15 for a suggestion to include other circuitry testing on the Hawk launcher. George A. DiPinto got \$14 for suggesting a line aid to support a part in drilling, countersinking and tapping. Warren J. Eastwood's idea to revise transport sequences of steel bases earned \$10.

NRC Radio Club Receives Hundredth QSL 'Ham' Card

The Electro-Mechanical Division NRC Radio Club has received its 100th QSL card to qualify for the DX Century Club award given by the American Radio Relay League.

QSL Cards confirm that the club has contacted amateur radio hams in foreign countries.

The 100th contact with a foreign based operator was made by Paul L. Staudenmayer, according to Julian Bloom, commissioner. The contact was John Snow, an American serviceman stationed in Keflavik, Iceland. Paul made the contact during the noon break at Anaheim on the

club's station WA6YNT.

For overseas contact the station has a Hallicrafters HT-37 transmitter, operating on the 20 and 15 meter bands with a linear amplifier that boosts output to the legal limit of 1,000 watts for amateur transmission.

Mr. Staudenmayer also made the first foreign contact with the club's station. This was July 1964 when he talked with an American serviceman operating station BV1USA from Taipei, Taiwan.

In addition to working 100 foreign stations, club members have made contacts with amateurs in every state of the Union.



PAUL STAUDENMAYER, left, and Julian Bloom compare the first and 100th ham amateur QSL received by the Radio Club.

MICHAEL CLOYD WINS SCHOLARSHIP THROUGH BASKETBALL CAPABILITIES

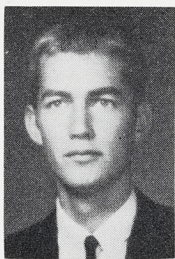
Michael, 18-year-old son of Harold A. Cloyd, general foreman, Fabrication, Page Court, has received a four-year sports scholarship to the University of the Pacific, Stockton.

The six-foot eight-inch youth won the scholarship because of his outstanding basketball playing with South High in Torrance. In the 1968-69 season he was a member of the Pacific Shores Tournament all tourney team and the Torrance Christmas Classic's most valuable player. He

scored 73 points in three games of the Christmas Classic.

The young man's interest in basketball came from his father who had been a high school player. "I put a basketball in his hands as soon as he could hold it," Mr. Cloyd said.

In addition to his sports interest, Michael has an outstanding Boy Scout record. An Eagle Scout, he has three bronze, three gold and three silver palms. He earned 66 merit badges and is an officer of the Order of the Arrow. He also has served as YMCA camp counselor, lifeguard and water safety instructor. When he has time for hobbies, he prefers mountain climbing.



Michael Cloyd

SLO PITCH

The official inter-plant Men's Slo-Pitch Softball League opened June 3 at the Electro-Mechanical Division, according to John Burke, NRC softball commissioner.

Winning the opening game was Manufacturing Liaison, coached by Al Cruz, who defeated the Page Court Jesters, coached by Gary Smith. The score was 8-11.

The second game was played the following day with the Charlie Brown All-stars, Harry Smith coach, beating Chance's Chargers.

NORTHROP NEWS

ELECTRO-MECHANICAL DIVISION EDITION

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Service Award Pins Presented Thirteen Veterans

Thirteen at the Electro-Mechanical Division received 10, 15 and 20 year service pins in June.

The 20-year veterans are Joseph J. Angellar, Tool Engineering and Planning; Michael J. Szidik, Tool Manufacturing; and Lee C. Matthews, Provisioning and Documentation.

Those completing 15 years' service with Northrop are Robert K. Baker, Publications Production and Control; Richard K. Hurd, Machine Shop; Harry H. Hovis, Jr., Manufacturing Liaison; William Hanna, Jr., Optical Development; Evelyn McVey, Electronic Production; Robert J. Calof, Systems Analysis; Charles J. Rusling, Jr., Mechanical Design; and Warren E. Agar, Field Service subunit.

Ten-year employees are Lola D'Andrea, Product Assurance Planning; and Maurice L. Hammock, Shipping and Electrical Receiving Inspection.

Wayne Hart Is First Summer Hire at Anaheim

The first Electro-Mechanical Division employee under the National Alliance of Businessmen's Summer Youth Program is Wayne Hart, a graduating senior from Fullerton.

Objective of the Summer Youth Program is to find vacation jobs for in-school youth to encourage them to return to school in the fall.

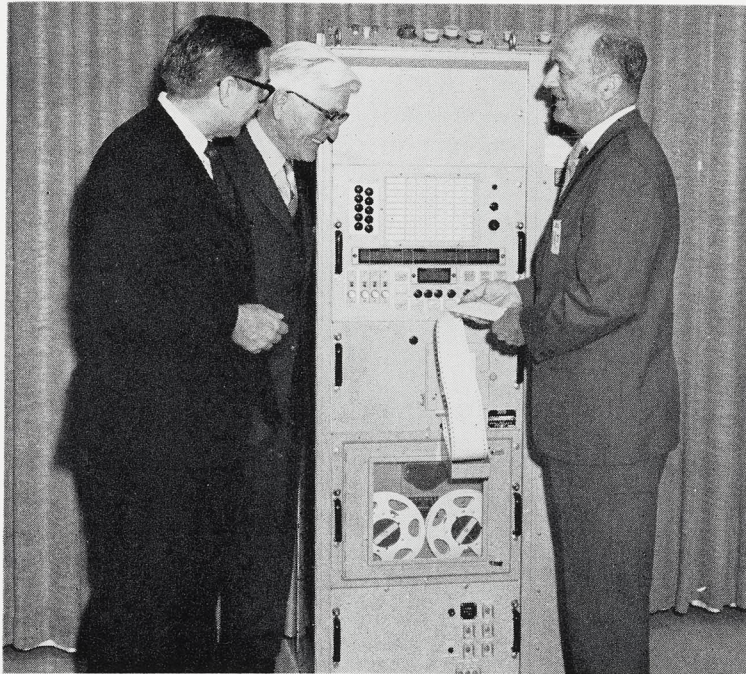
Wayne is employed in the Northrop Electro-Mechanical Division Reproduction Services where he will assist in the bindery, blueprint section and print shop, according to Harvey Noxheim, supervisor, Reproduction Services.

This is the first year Wayne has been employed in the Summer Youth Program. His work this summer will help him attend Fullerton Junior College this fall. He expects to major in business

(See HART, page 6)



WAYNE HART, first Summer Youth Hire at the Electro-Mechanical Division, is coached in bindery work by Gus Grijalva, coordinator, Reproduction Services.



NORTHROP'S TEAMS, for monitoring key tactical systems aboard Navy ships, is inspected by Rear Admiral Harry C. Mason, right, commander of the Naval Ship Engineering Center, Washington, D.C. Teams has just received service approval after a six-month evaluation in Vietnam waters aboard the destroyer escort, USS Coontz. Shown with Admiral Mason at Electro-Mechanical Division are, from left, Frank W. Lynch, vice president and division general manager, and Thomas H. Quayle, vice president and manager of the Anaheim department. Northrop has sold over \$200 million worth of automatic test systems, including TEAMS.

Operations Research Does Systems Studies

The Automation Systems section, Electro-Mechanical Division, has established an operations research capability devoted to systems studies.

This function is comprised of eight engineers and was originally established to carry out a Navy feasibility study contract on the use of computer simulation models for shipboard maintenance system evaluation. Since May 1968, two Navy contracts have been awarded to develop and exercise a full-scale mathematical model on the IBM 360-30 computer.

Objective

"Purpose of the model is to allow selection of an optimum operational maintenance environment for a destroyer escort," John Stettler, lead engineer, said.

This is done by translating the flow of all maintenance data into

a classical information network where prime systems act as data generators, and ship's personnel become receptors.

After all types of data and each receptor's requirements are specified, the computer selects appropriate nodes in the network (sense, acquire, transmit, process, display and record) through which each piece of data must flow.

The program then examines different node implementations (automatic, semi-automatic and manual) and accumulates costs, man-machine time expended, and effectiveness data.

The model user can input cost, time, or effectiveness criteria and obtain printouts showing which equipments should receive automatic monitoring. He can also specify certain implementations and receive cost and time values on a total system basis.

The model will verify the credibility of the analysis technique and determine that automated shipboard system monitoring, if prescribed by the model, is clearly a cost-effective approach.

(See RESEARCH, page 6)

BAVARIAN DANCE TO BE REPEATED

The popular Bavarian Dance will be repeated by the Electro-Mechanical Division NRC Clubs on Saturday, July 19, according to Randy Lee, special events chairman.

The festivities, starting at 9 p.m. and extending to 1 a.m., will feature the Tune Launchers, and plenty of refreshments. Tickets are \$2 per person. The place is the NRC Clubhouse at 1834 Valencia, Fullerton.

Two Women Share In \$2,000 Award

Rita M. Guzinski and Lois M. Smith shared equally in a maximum \$2,000 suggestion award which both submitted independently without knowing the other was working on the same idea, according to Larry King, Suggestion Award administrator.

The two worked across an assembly table from each other on door mounting junction panels for the Polaris Mark 7 program in the Polaris Electronics Assembly area at Anaheim.

The panel assemblies are long and heavy, requiring assembly work on both faces. This required from two to three assemblers to be assigned to each unit.

When one face was finished, its heaviness required the assemblers calling for help to turn it over for work on the other side.

The idea submitted by Mrs. Guzinski and Mrs. Smith was for a trunnion type assembly tool to hold the panel assembly by the ends and permit it to be rotated for accessibility to both sides.

Each presented a somewhat

different approach to the solution. Best features of the two ideas were combined in the winning joint award.

The tools have been fabricated according to their suggestion, Foreman J. M. Williams reports, and have already been used on two sets of door mounting junction panels. Only one assembler is now required per panel and her work is more simple.

Mrs. Guzinski has been with Northrop for 17 months and Mrs. Smith has worked here since August 1967.

Northrop Pledges Cost Reduction Program Support

President Thomas V. Jones has pledged to Defense Secretary Melvin Laird Northrop Corporation's full support of the Defense Contractor Cost Reduction Program.

Responding to a letter addressed by Secretary Laird to Northrop as one of the companies participating in the Contractor Cost Reduction Program, Mr. Jones declared, "You have my personal assurance that the management and personnel of Northrop Corporation will continue to work with the Department of Defense to provide the nation with goods and services at an ever increasing worth-to-cost ratio."

"Increasing our product worth-to-cost ratio is the keystone policy of our company Cost and Management Improvement Program, which states, 'it is Northrop policy that each individual vigorously direct his efforts toward improved management techniques, high quality production and effective performance at the lowest possible cost.'"

Mr. Laird noted in his letter to Mr. Jones that the Department of Defense in-house Cost Reduction Program should produce over \$1 billion in audited savings in the current fiscal year and that

(See PLEDGE, page 6)

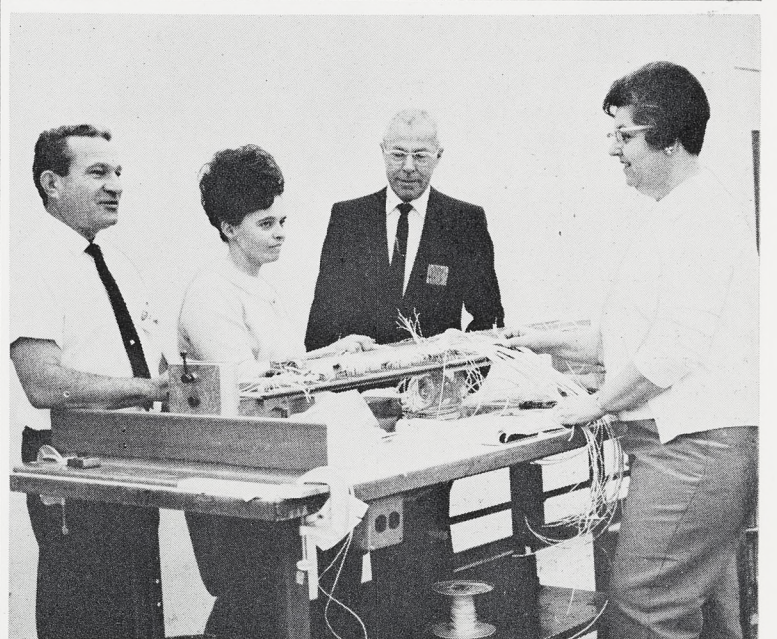
Welko Gasich Tells Ventura's Northrop Role

"Business Posture of the Northrop Ventura Division" was the subject of an address by Welko Gasich, vice president and general manager, Ventura Division, to the combined Electronics and Electro-Mechanical Divisions' Management Club.

Mr. Gasich traced the division's growth from a company set up to build propeller-driven target drones to its present scope which extends from space activity to undersea operations.

"Our original work with target drones required studies in drone recovery," Mr. Gasich said. "This led us into recovery systems for NASA's Mercury, Gemini and Apollo manned space programs."

(See GASICH, page 6)



LOIS SMITH, left, and Rita Guzinski, show Foreman J. M. Williams and M. A. Seeley how their suggestions speed up work.

NORTHROP NEWSMAKERS

David N. Chalk, Electro-Mechanical Division, was a member of a panel that discussed Individual Development Planning at the Sixth Annual Industrial Relations Seminar at the Kennedy Space Center, Florida, last month.

Doug Burton, J. Landin and **Jerry Reed**, all Aircraft Division, were graduated from the Miller Fluid Power Institute, a one-week course in the latest aspects of pneumatics and hydraulics as applied to aerospace uses. The course was taught at Bensenville, Illinois.

R. J. Kaminski, Aircraft Division, has presented a paper titled "System Safety, the High Road?" at the 8th Conference on Assurance Engineering and Sciences sponsored jointly by AIAA/SAE/ASME organizations in Denver.

W. H. Justice, Northrop Data Processing, participated as a panelist discussing "Design Considerations for Continuous System Simulation Languages—An Informal Workshop" at a Conference on Applications of Continuous System Simulation Languages" in San Francisco.

Chintsun Hwang and **W. S. Pi**, both Aircraft Division, have prepared an article titled "Random Acoustic Response of a Cylindrical Shell" for publication in the AIAA Journal.

A. K. Goswami, Northrop Corporate Laboratories, has authored an article titled "Polarization and Construction Mechanism in Amorphous Semi-conductor" for publication in the Journal of Noncrystalline Solids.

F. W. Pietzman, Aircraft Division, has prepared a paper titled "Transonic Airfoil Testing" for

presentation at the University of Tennessee Space Institute short course.

W. Stanley Kosidlak and **P. H. Von Essen**, both Aircraft Division, have made special presentations at Cerritos and Harbor junior colleges respectively. They appeared before student chapters of the American Society of Tool and Manufacturing Engineers.

D. L. Dyer and **K. Mori**, Northrop Corporate Laboratories, are co-authors of a paper titled "Fluorescent Nuclear Staining with Europium Thenoyltrifluoroacetate" for possible publication in the Journal of Histochemistry and Cytochemistry.

Theo Knacke, Ventura, discussed "Controlled Landings of Aerospace Vehicles with Lifting Parachutes" at a recent meeting of American Institute of Aeronautics and Astronautics specialists in Los Angeles.

Elizabeth Henjum, daughter of Ventura's **Cliff Henjum**, was a finalist in the recent Miss California Pageant at the Ambassador Hotel in Los Angeles. **Sandra Linebarier**, daughter of Ventura's **Harvey Linebarier**, was a runner-up in the Miss Conejo Valley contest in June.

NORTHROP PLANES RECORD BREAKERS

Northrop-built aircraft were instrumental in breaking three records for flying hours at Williams AFB, Arizona, during April.

Northrop T-38's logged 6,494 flying hours, a new Air Training Command utilization base record for one month. Previous high was 5,911 hours.

The T-38's, plus T-37 aircraft, logged 11,778 flying hours, higher than the previous base mark of 10,776 for a single month. These aircraft, plus Northrop-built F-5's logged 12,330 flying hours, a new base record bettering a previous high of 11,617 hours.

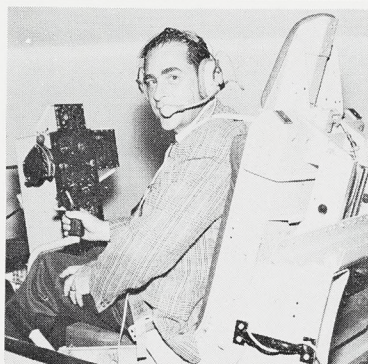
Dr. Gupta Writes Four Articles for Tech Journals

Dr. Y. P. Gupta, director of the Materials Sciences Laboratory, Northrop Corporate Laboratories, has authored four articles published recently.

"Diffusion of Zinc and Germanium in Liquid Silver" was published in the transactions of the Metallurgical Society, AIME.

"On Cleavage Surface Energy of Calcite Crystals" appeared in Acta Metallurgica. "Cation Self-Diffusion in Single Crystal CaO" appeared in the Journal of Physics and Chemistry of Solids as did an article titled "Electrical Conduction and Electron Microscopy of Vitreous Solids in the K₂O-SiO₂ System."

The last three articles were co-authored with A. T. Santhanam, V. Kumar and U. D. Mishra, respectively. All are former business associates of Dr. Gupta.



JACK SHEA, coordinator of P-1127 flight test program for the USAF Flight Dynamics Laboratory, tries his hands at the controls of Northrop's V/STOL flight simulator.

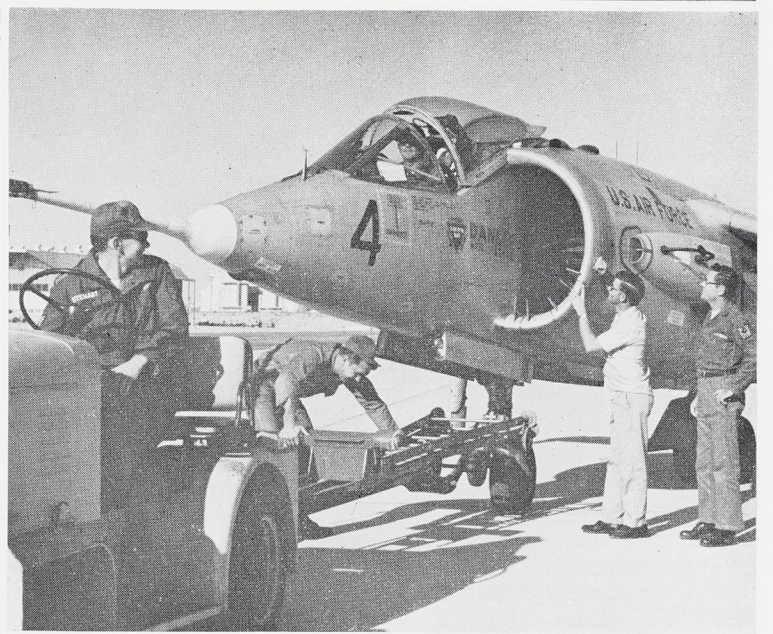
DR. DONALD WAHL JOINS COMPANY

Dr. Donald Wahl has been appointed vice president and general manager, Defense Systems Division, Hallicrafters Company, a Northrop subsidiary.

Dr. Wahl was formerly vice president and director of engineering with the Conduccion Corporation, St. Louis, and was previously with Optics Technology, Palo Alto, and General Dynamics/Electronics, San Diego.



KOREAN VISIT — Hank Chouteau, Northrop chief test pilot, left, explains Northrop operations at Edwards AFB to General Sung Yong Kim, chief of staff, Republic of Korea Air Force (ROKAF). Standing in the rear are Mrs. Kim and Dick Thomas, Northrop test pilot. At the right is Brig. General Alton D. Slay, commander of the Edwards AFB Flight Research Center. General Kim visited Edwards AFB as part of an official USAF tour at the invitation of General John P. McConnell, USAF chief of staff.



V/STOL TECHNOLOGY — A USAF maintenance crew prepares to move Hawker-Siddeley P-1127 out for flight test as Northrop's Max (Smokey) Myers (civilian clothes) makes last minute instrumentation adjustment. Northrop has supported flight test program since 1967.

Northrop Supports V/STOL Test Effort

As part of its work in advancing V/STOL (vertical or short takeoff and landing) technology, Northrop Corporation has successfully completed its work in support of USAF testing of the Hawker-Siddeley P-1127 aircraft.

The P-1127 is a V/STOL aircraft which employs deflected jet thrust to attain vertical flight.

Northrop's Flight Test organization, Aircraft Division, has actively supported this program since 1967.

The recent flight test program was conducted under the direction and sponsorship of the V/STOL Technology Division of the Air Force Flight Dynamics Laboratory, Wright-Patterson AFB, Ohio.

Flight tests were performed at Edwards AFB and Point Mugu, California, by test pilots from the V/STOL Operations branch of the Flight Test Operations Division, Air Force Flight Test Center, Edwards AFB.

Northrop responsibility on the program included modification of the aircraft for test, design and installation of the data ac-

quisition system, test planning and scheduling, instrumentation maintenance and complete data processing.

The over-all P-1127 program was conducted to obtain research data in three areas.

The initial tests, conducted in 1967, included data gathering in the area of stability and handling qualities in vertical and transitional flight. Subsequent tests, recently completed, included an investigation of inlet performance and re-circulation effects in vertical flight and an investigation of pressure distribution on the lower external surfaces of the aircraft in V/STOL flight modes.

Northrop's Dick Oliver has served as project engineer on the P-1127 program, while Don Murray has worked as the P-1127 flight test engineer. Flight Test personnel at Hawthorne and Edwards AFB have supported the program through design and fabrication of instrumentation, installation and maintenance and the acquisition and processing of data obtained.

Jack Shea coordinated USAF Flight Dynamics Laboratory efforts on the just-concluded program.

P-1127 aircraft, fabricated in England have now completed an extensive cycle of scheduled testing.

Carlsons Attend Scout Jamboree

Three members of Northrop's Richard Carlson family will journey to Farragut State Park, Idaho, this month to take part in the 7th National Jamboree of the Boy Scouts of America.

Mr. Carlson, a facilities and communication specialist with Northrop Data Processing, attended the first Scout jamboree ever held in Washington, D.C., in 1937. He has been active in scouting for 35 years and will lead a North Orange County Jamboree troop to Idaho.

Accompanying him will be Alan Carlson, 19, a sophomore at the University of California, and Mark Carlson, 17, a senior in Fullerton Union High School. The two younger Carlsons, plus their dad, are Eagle Scouts and double as scout leaders. A third son also an Eagle Scout is in the Marines.

'Playboy' Buys Story Written By Ventura Man

Ventura's Vince Gurley is a man of many hobbies and one of them is going to reward him with more than satisfaction.



Mr. Gurley

Mr. Gurley, in Subcontracts Marketing, collaborated with a longtime friend to write — and sell — a 4,000-word fiction story to Playboy Magazine.

He got together with Maurice Ogden one weekend, he said, and dreamed up the story. It took a few more weeks to refine into finished form. Playboy will publish it later this year.

Mr. Gurley, who says he has been writing "for years," studied journalism for two years at the Armed Forces Institute. Mr. Ogden has won several international poetry awards and received the coveted O. Henry Award for short stories three times.

When he isn't writing, Mr. Gurley can be found in his garden growing orchids and bromeliads or sailing out of Newport on his 26-foot Columbia yacht.

A resident of Garden Grove, Mr. Gurley has been with the Ventura Division five years.

THOMPSON BEST IN SCOUT CLASS

Graduating at the top of a class of 24 adult leaders participating in the annual Boy Scout Wood Badge training program at the Circle X Scout Reservation was Marshall Thompson of the Aircraft Division Management Development staff.

Only 24 adults from throughout the Los Angeles Area Council were selected to attend the eight-day program which consists of classroom and field training.

Mr. Thompson, an assistant scoutmaster in Redondo Beach, has been an active adult leader for six years and was in scouting for nine years as a youth. He earned the rank of Eagle Scout with three palms.

His son, Mark, 14, is currently attending the Cedar Badge training program at Lake Arrowhead and will depart shortly for the National Boy Scout Jamboree in Idaho.

TRAP SHOOT

The NRC Trap and Skeet Club has scheduled its July matches for July 27 at the Golden Valley Gun Club, Pacoima.

Lunar Receiving Lab Awaits Arrival of Apollo 11

Brown & Root-Northrop scientists and technicians at the NASA Lunar Receiving Laboratory (LRL) are making final preparations to receive earth's first explorers to the moon.

Astronaut Neil Armstrong, Michael Collins and Edward Aldrin will spend two weeks in the LRL to prevent possible biological contamination of the earth's atmosphere with potentially dangerous particles from the moon's surface.

Brown & Root - Northrop (BRN) is a joint venture of Brown & Root, Houston, Texas, and the Northrop Corporation. It was formed in 1964 to join the capabilities of both companies to provide specialized support services required for the United States' massive space effort.

Three Parts

The \$15 million LRL, a three-story, 83,000 square foot facility located in Houston, is divided into three primary functional groups: Crew Reception, Sample Operations, and Administrative and Support sections.

The Crew Reception area will be the home of the astronauts and attendant technicians during the quarantine period. It has all the conveniences of a modern hotel, including offices, a dormitory, lockers, and showers. The astronauts will tell their history-making story from this area via a closed circuit television and standard communications system which connects the crew with the press briefing room.

All lunar samples gathered by the astronauts will be housed in the Sample Operations area. These

samples will be studied by scientists behind a biological barrier much like the one surrounding the crew's area. All studies will be conducted in several specialized laboratories including vacuum, magnetism, gas analysis, biological test and radiation counting laboratories.

Control

The Administrative and Support area will control the operation and

circulation of both personnel and materials. The plant environment laboratory, located within this area, contains four controlled environmental chambers used to obtain growth and development data on 21 plant species. It also houses an electron microscope capable of magnification to 80,000 times normal size.

The 180 man Brown & Root-Northrop LRL effort will be head-

ed during the astronauts stay by Harry Clagett, project manager, and Joe Whitworth, deputy manager. Reporting to them and scheduled to direct efforts in the crew reception area is Mel Graham, Logistics and Operations officer and senior research analyst.

Quarantine

Quarantined with Mr. Graham and the three astronauts will be BRN technologists John Potter,

Jerry Terrell, Hank Kippa and Charles Gill, who are responsible for clinical chemistry, hematology, enzyme analysis and the immunology program. Each technologist is cross-trained in all biomedical requirements.

Also reporting to Mr. Graham is Chief Steward William Woods and Assistant Stewards Jessie Stewart and Bobby Lartigue. Rounding out the team is Harry Cantu, X-ray technologist.

Important

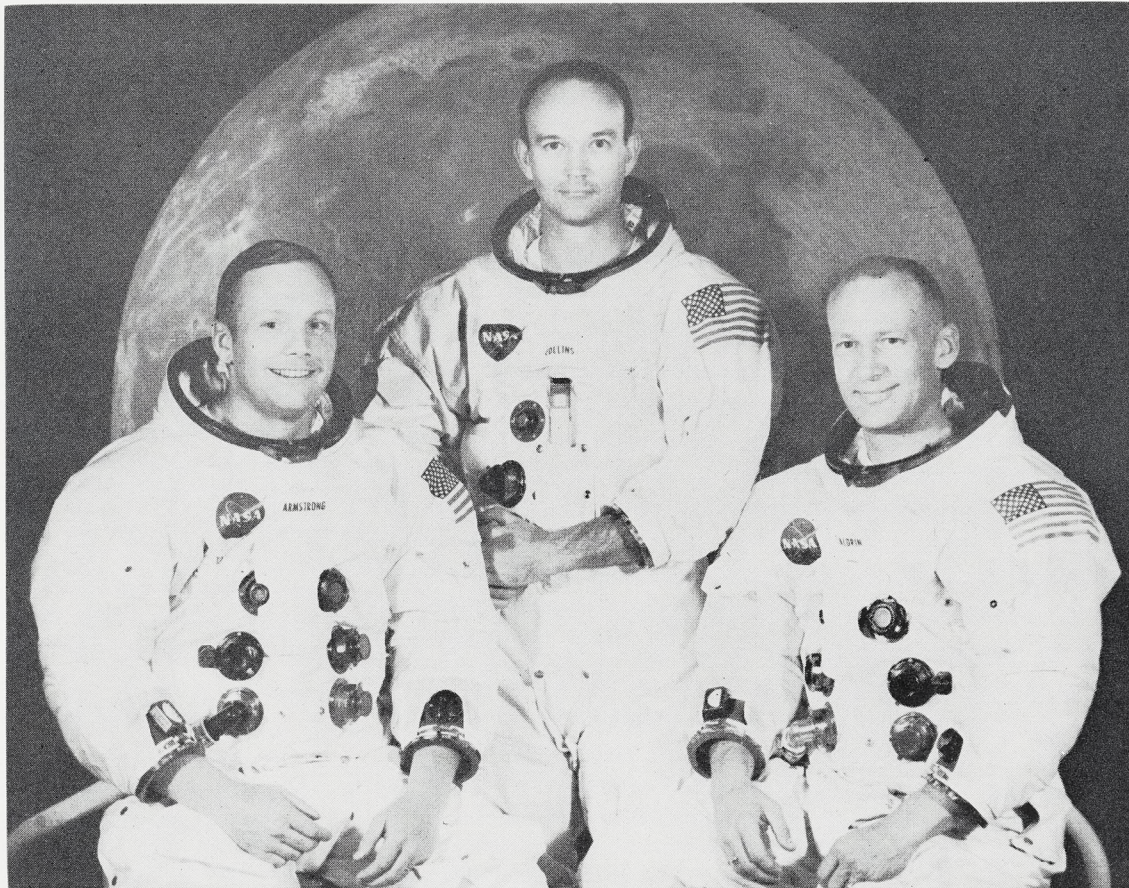
Dr. Charles Truby, clinical biologist, will head the BRN biological scientists working outside the barrier. This team will conduct experiments which will provide a basis for decision upon any possible threat to earth life systems.

In the physical science area, Dr. Leonard Jones will supervise another group that will operate the equipment in which the moon samples will be placed, and do the initial handling of the samples as well as collect data.

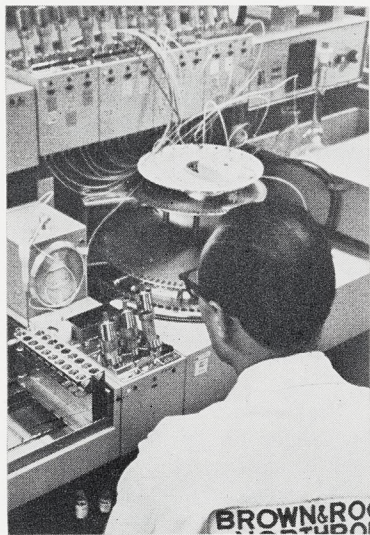
The Northrop portion of the BRN joint venture is under the cognizance of the Support Operations department, Electro-Mechanical Division, headed by William J. Oakes.

"Even though the possibility of harmful germs or bacteria existing on the moon is considered remote, scientists are taking no chances," Mr. Oakes said.

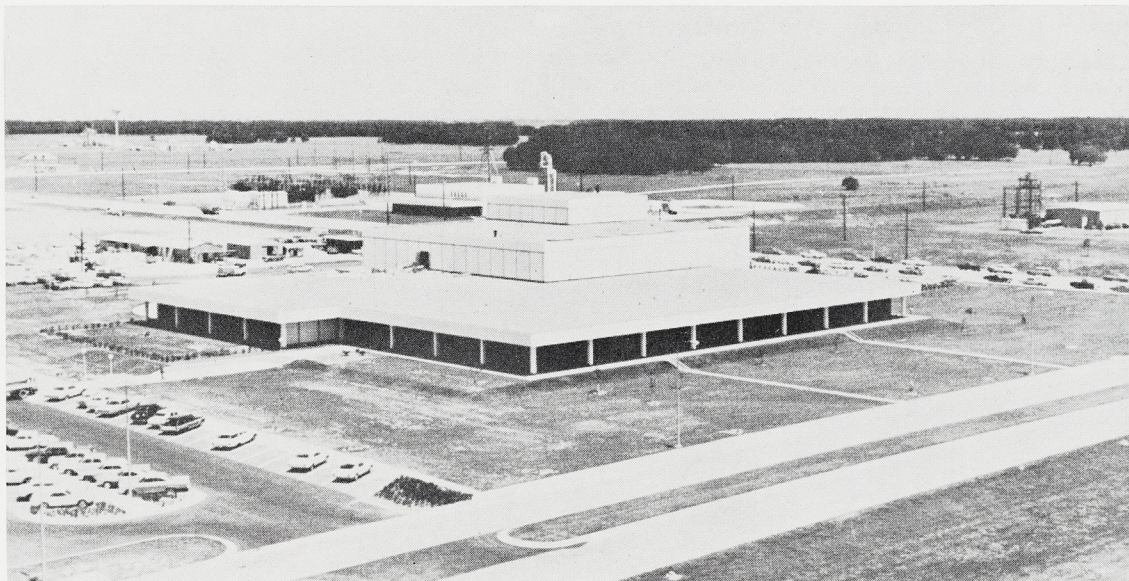
"It is equally important that the returned samples not be contaminated by earth organisms which could lead to false conclusions about the existence of living organisms on the moon," he added.



ASTRONAUTS NEIL ARMSTRONG, MICHAEL COLLINS, EDWARD ALDRIN

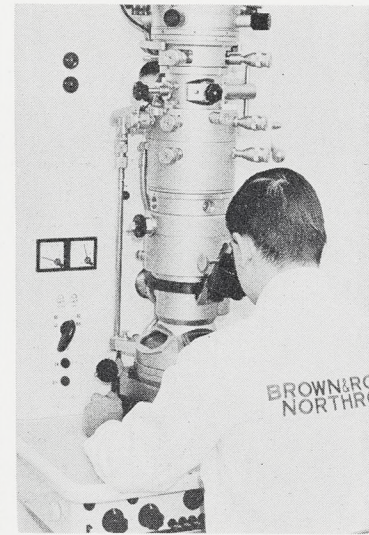


ROBOT CHEMIST—A completely automated robot chemist is operated by a BRN technician. The robot transports liquid samples to hundreds of tiny vials for hematological and clinical studies.



HOME-AWAY-FROM-HOME — NASA's Lunar Receiving Laboratory, staffed by scientists of Brown & Root-Northrop, will be used to quarantine the earth's first men to set foot on

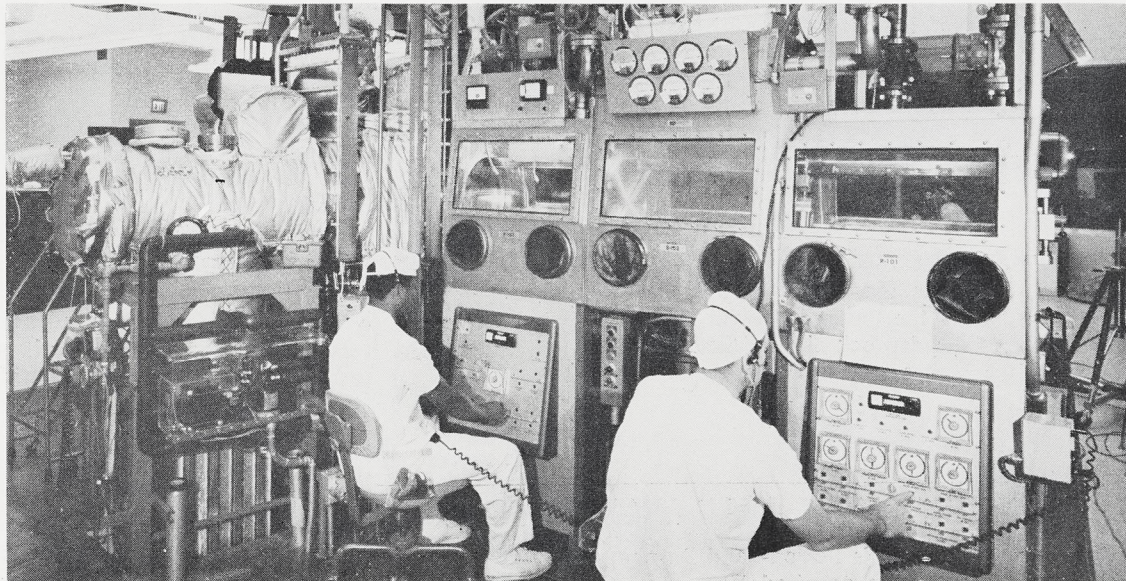
the moon. The astronauts and the samples of lunar material they bring back, will be isolated for approximately 16 days for examination.



POWER — A special electron microscope, capable of magnifying up to 80,000 times normal size, will be used to investigate clinical samples for viruses during the quarantine period.



QUARTERS—Apollo 11 crew will use this recreation room and dining area during their quarantine. The area will be in constant use by astronauts and support technicians.



SAMPLE TEST—All samples gathered on the moon by the Apollo 11 crew will be processed and distributed to scientists around the world

from the LRL. All precautions will be taken by BRN personnel to insure all samples are decontaminated by ultra-violet light and an acid bath.

WHAT DO YOU THINK?

What Does Independence Day Now Mean to You



Mrs. Burgess

Barbara Burgess, zone dispatcher, Electro-Mechanical:

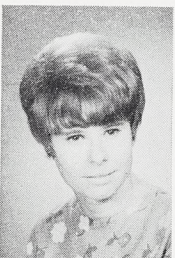
It certainly means more than just a day for hot dogs and a picnic. It is a time to remember all our country means to us.

Burlie Cole, engineering specialist, Electronics:

I feel it is a time to reflect on the basic freedoms which this country was founded upon. I think if we had more reflection on the liberties that America offers us, we certainly would have a lot less trouble in the United States.



Mr. Cole



Mrs. Sims

Joanne Sims, Xerox operator, Aircraft:

It means fireworks, picnics and a time to think about all of our soldiers who are now serving to preserve the freedoms we enjoy as Americans.

Estelle Albillar, Parolab, Ventura:

It means a lot to me. It makes me feel proud to be an American and to know that I am part of the team that is putting a man on the moon and bringing him safely back.



Mrs. Albillar



Mr. Fox

Charles H. Fox, mechanical design engineer, Electro-Mechanical:

I think of the Fourth of July in all of its old glory as a personal expression of pride in our country. It's a time to reflect on what unity of effort can accomplish as shown in the power and glory of the United States.



Mrs. Rehfus

Louise Rehfus, procedures clerk, Electronics:

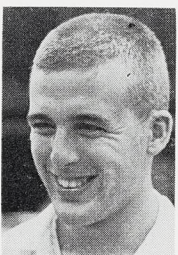
It means the celebration of the freedoms we enjoy today in this country and that each of us should recognize our responsibility to insure these freedoms for our children.



Mr. Segarra

Ralph Segarra, tool and cutter grinder, Aircraft:

It is a time for all Americans to pause and be grateful that they are living in a country that offers freedom to all people regardless of race, color or religion.



Mr. Duncan

Jim Duncan, paint shop, Ventura:

Well, fireworks most of all. And the two years I spent in the Philippines with the Navy. I worked in the drydock and all the ships that were in the Vietnamese waters came to us for repairs.

DISCOUNT TICKETS AVAILABLE FOR CIRCUS

The Aircraft Division's Personnel Activities office has acquired a special block of discount tickets for the 6:30 p.m. August 3, production of the Ringling Brothers and Barnum Bailey Circus at the Forum. Regular \$4 reserved seats are available through NRC sponsorship for only \$3.

GREAT-GRANDFATHER'S ADVENTURES

Old Stamp Inspires Sanford's Book

A 107-year-old postage stamp started Northrop's Paul Sanford on research that led to publication of a book about the struggles of the Ninth Regiment, Minnesota Volunteers, against the Sioux Indians from 1862 to 1865.

Knowing he collected stamps, a relative sent him a bundle of old letters so he could remove the stamps. The letters proved to have been written by Paul's maternal great-grandfather between 1862 and 1864 while fighting the Sioux.

Fifth Sergeant

The great-grandfather, Benjamin Franklin Pierce, was mustered out of the Union Army after being wounded at Bull Run. He went to Minnesota just before the Sioux took advantage of the Civil War to massacre 500 men and take 300 women and children hostages. Mr. Pierce joined the punitive army as "Fifth Sergeant."

The letters were so interesting that Paul continued research. He made a trip to Minnesota to find out all he could and travel over the old battlegrounds. He visited museums and talked with pioneers. He was able to borrow from one woman official reports of General Sibley and General Sully, the punitive expedition commanders.

Two Versions

The generals' reports differed somewhat from what great-grandfather wrote," Paul explained. "At times the generals sounded as if they did it all themselves. I used the official reports for authentic documentation of the battles and the letters for day-by-day experiences of the troops."

The resulting book, "Sioux Arrows and Bullets," was published recently by the Naylor Company, San Antonio.

"Sioux Arrows and Bullets" is Mr. Sanford's second book. He previously published "Where the Old West Never Died," the story of Baja California's famed Meling Ranch. He is presently working on a fiction story with the

same background of early day ranching and mining in this wild era.

Mr. Sanford began writing eight years ago. He works three hours a night with an extra 10 hours on

Sundays. He revises from 12 to 20 times and works on a book at least a year. He is a senior engineer in the Electro-Mechanical Materials and Processing Engineering section.



RESEARCHING in old volumes gives Paul Sanford authentic details for his historical books.

Ventura Secretary Picked For Leading Musical Role

A Ventura secretary will play one of the key roles in the Cabrillo Music Theater production of the Rodgers and Hammerstein musical "The King and I" July 25-27.

Lupe Zuniga, secretary to Management Information Systems Chief Michael Burns, will display her soprano voice as the Siamese princess Tuptim.

Miss Zuniga is no newcomer to the entertainment world. She has studied drama and voice and appeared in several stage and motion picture productions.



Miss Zuniga

She was also featured in the bilingual "Cancion De La Raza" (Song of the People) series on Los Angeles television Channel 28. The taped series is now being seen nationwide on educational television channels.

Her stage experience includes roles in "West Side Story," "South Pacific" and "Annie Get Your Gun" with the Oxnard Plaza Players. At the Curtis Stearns Opera Workshop in Hollywood she also appeared in several operas.

In the popular music field she cut a 45 rpm record for Associated Artists. "She Broke Your Heart" is the key number and "Walking In A Daydream" is the flip side.

Her formal voice recital is scheduled for this fall at the Russell Studios in Hollywood.

In "The King and I" Miss Zuniga will play opposite Terry Bartholme as the king and Alberta Percy as the maiden schoolteacher. Mara Lysova is the director.

Special discount rate tickets for the Saturday, July 26 performance may be obtained by calling Kathy Miller at the Northrop Ventura Recreation Club office, ext. 435.

NRC TRAVEL CLUB SETS HAWAII LUAU

Northrop Travel Club will hold a kickoff meeting and Luau July 13 at Latitude 20 to start the ball rolling for the annual year-end Hawaiian holiday group tour.

Entertainment begins at 2 p.m.; dinner will be served at 4:30 p.m. Tickets, at \$4 each, are available through NRC and Personnel Activities outlets.

Sandy Sandstrom Helping Create Unusual Monument

Sandy Sandstrom, supervisor of Maintenance and Construction for the Electronics Division, is helping to erect a monument.

As chairman of the Vultee Club of Downey, Mr. Sandstrom is heading the club's present project to erect a memorial marker in honor of Jerry Vultee, aviation pioneer and founder of Vultee Aircraft Company.

Jerry Vultee, who worked with company founder Jack Northrop at Douglas in 1926 and later with Lockheed, formed Vultee in 1932. The company was combined with Consolidated Aircraft Company near the end of World War II.

"The marker will be erected near the mountainous area of Sedona, Arizona. It was there, on January 28, 1938, that Mr. Vultee and his wife died in an airplane crash during a heavy

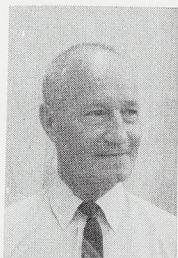
snow storm," Mr. Sandstrom said.

The crash site was verified by Mr. Sandstrom two months ago during a trip he made to Sedona. Prior to his visit, there had been only speculation as to exactly where the plane may have crashed.

The Vultee Club, formed in 1947, is composed of more than 1,000 past and present employees of Vultee.

"We hope to unveil the marker this September. Many members of the club plan to attend the ceremony," he said.

A veteran of more than 34 years in the aerospace industry, Mr. Sandstrom first joined Northrop in 1934. He left the company in 1939 and returned in 1950.



Mr. Sandstrom

PAGE CONTRACT

The Government of Ghana has awarded Northrop Page a study contract for the development and expansion of an up-to-date telecommunications system. The 12-month program is being sponsored by the U.S. Agency for International Development.

IS IT NEWS?
CALL EXT. 4273
HAWTHORNE

Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

Corvette, 1966 fastback, auto., 327, new carb., \$2,995. 213-644-8111. A

Volkswagen, 1963, w/sunroof, \$700. 213-545-1424. A

Station Wagon, 1966 Chevy II Nova, a/c, auto., big V-8, \$1,495. 213-862-3027. A

Corvette, 1968, 427 eng., p/w, posi-trac., 4-spd., AM-FM, \$3,900. 213-672-3300. A

Datsun, 1968 4-dr. 510, \$1,670. 213-882-0761. A

Dune Buggy, VW, fiberglass, street legal, \$695. 213-370-2876. A

Cougar, 1967 XR7, 289 V-8, fact. stereo, p/s, \$1,995. 213-375-9946. A

Pickup, 1969 Datsun, w/camper, 7,000 mi., lge. bumper, \$1,945. 213-671-1850. A

Volkswagen, 1968 fastback, 12,000 mi., \$2,200. 213-534-3410. A

Volkswagen, 1964 bus, \$1,300. 213-373-2412. A

Pickup Truck, 1931 Model A, ¾ restored, all new or reblt. parts, \$1,100. 213-370-7092. A

Volkswagen, 1969, sunroof, auto. & portable AM-FM radio, \$1,895. 213-390-2958. A

Mustang, 1965 Shelby GT 350, wide whls. & rear swaybar, \$2,200. 213-675-2813. A

Pontiac, 1965 G.P., p/s, p/b, fact. air & heater, \$1,595. 213-635-4453. A

Chevrolet, 1967 Impala, full pwr., 327 eng., fact. air, 2-dr., many extras, \$2,100. 213-328-5608. A

Karmann Ghia, 1967, r/h, 16,000 mi., \$1,795. 213-644-1945. A

Volkswagen, 1956, rebilt. eng. & trans., \$300. 213-398-2103. A

Edsel, 1959 Ranger, 2-dr. h/top, \$800. 213-671-6017. A

Volkswagen, 1968, sunroof, radio, \$1,650. 213-545-5381. A

Cadillac, 1964 Coupe de Ville, \$1,200. 213-376-3400; 213-376-3409. A

Pontiac, 1960 Ventura cpe., 421 cu. in. Tri-Power, 4-spd. Hurst, \$550. 213-372-3967. A

Falcon, 1963, 2-dr., auto. trans., \$550. 213-377-3482. A

Ford, 1955 Fairlane 500, 4-dr., V-8, auto., air, \$1,100. 213-671-0925. A

Cougar, 1967, a/c, p/s, p/b, wide oval tires, \$2,699. 213-678-8467. A

Camper, 1955 Volkswagen Westphalia, pop up, standing tent, \$1,995. 213-373-2189. A

Camaro, 1967 SS 396, 325 h.p., 4-spd., wide track tires, \$2,095. 213-644-1074. A

Chevrolet, 1962, 2-dr., auto. trans., r/h, stereo tape player, \$700. 213-671-3881. A

Station Wagon, 1966 Chrysler, 9-pass., a/c, AM-FM radio, d/brakes, roof rack, \$2,450. 213-425-6816. A

Volkswagen, 1964, new brakes, Porsche clutch, \$950. 213-677-5247. A

Volvo, 1966 mod. 122 S, 2-dr., \$1,500. 213-677-7949. A

Falcon, 1962, 4-dr., 6-cyl., std. shift, \$495. 213-644-9359. A

Oldsmobile, 1962 88, all power, 2-dr. h/top, \$995. 213-376-8537. A

Corvette, 1966, convt., stripped, \$1,825. 213-639-6653. A

Chevrolet, 1956, 4-dr., stereo, mag. wheels, htr., \$300. 213-534-1696. A

Triumph, 1961 TR-3, new tires, \$500. 213-675-3613. A

Chevrolet, 1961 Bel Air tudor, \$495. 714-635-3315. A

Corvair, 1966 Corsa, 4-bbl., 140 h.p., \$1,450. 213-542-4185. A

Station Wagon, 1952 Jeep, 4-wheel dr., \$450. 213-363-5205, 213-761-9565. A

Volkswagen, 1966 1300 Series, extras, \$950. 213-943-6278. A

Station Wagon, Land Rover, 1969 109 camper, many extras, 6-cyl. off-road eng., \$4,500. 213-545-6719. A

Chevrolet, 1960 Impala, 302 V-8, stick, \$325. Box 1201. A

Pontiac, 1966 GT0, 4-spd. Hurst, \$2,000. 213-644-7932. A

Pickup, 1962 Ford, ½-ton, \$950. 213-329-9809. A

Chevrolet, 1955, 327 eng., r/h, power, extras, \$750. 213-280-8039; 213-373-5283. A

Cadillac, 1961, coupe, air & power, eng. o/hauled, \$450. 213-370-5187. A

Ford, 1968 Country sedan, 390 eng., p/disc/brakes, p/s, a/c, lug. rack, r/h, \$3,350. 213-671-4986. A

Thunderbird, 1955, removable top, \$1,295. 213-695-1687. A

Volvo, 1966, 122S, 2-dr., \$1,500. 213-679-5494. A

Pickup, 1964 Chevrolet, ¾-ton, r/h, Alaskan camper, 4-spd., \$1,450. 213-374-6137. A

Mustang, 1966 GT convt., 4-spd., fact. 8-track tape/AM radio, d/brakes, 289 V-8 eng., \$1,550. 213-294-6964. A

Automobiles For Sale

Volkswagen, 1967 fastback, AM-FM, extras, \$1,550. 213-323-8089. A

Jaguar, 1967 XKE, 4.2 cpe., stick, r/h, wire whls., full d/brakes, \$4,050. 213-397-5943. A

Mustang, 1965, stereo tape, wide ovals, 289 V-8, w/Cruise-O-Matic, \$1,800. 213-831-5837. A

Station Wagon, 1968 Saab, 4-cyl. 73 h.p. motor, Pirelli tires, \$2,300. 213-676-5425. A

Camaro, 1968, 327 eng., fact. a/c, \$2,450. 213-788-9709. A

Volkswagen, 1964, new eng. & uphol., r/h, \$925. 213-676-8833. A

Chevy II, 1967 Nova spt. cpe., 283 V-8, auto., r/h, \$1,600. 213-542-4948. A

Household Items For Sale

Bedroom Set, maple, chest-of-drawers, night stand, desk, jr. size, \$60. 213-434-9533. B

Washer & dryer, elec., Lady Kenmore, turquoise, 1 yr. old, \$300. 213-379-1708. B

Bathroom Sink, white, 19"x21", wall mount, \$6. 213-378-1863. B

Dining Room Set, antique, w/table & 6 chairs, needs refinish, \$30. 714-531-4958. B

Stove, O'Keefe & Merritt, 4-burner w/griddle & broiler, \$25. 213-374-1133. B

Sectional, 3-piece, \$65. 213-931-2504. B

Couch, Danish modern, & chair, reversible pillows, \$30. 213-377-2816. B

High Chair, chrome, Cosco, \$13. 213-324-4817. B

Crib, w/mattress, drop-side w/3 mattress positions, \$15. 213-644-1819. B

Lamps, 2, lge., rust & gold, silk shades, Mediterranean, \$40 ea. 213-644-2515. B

Toaster, 4-slice, box never opened, \$20. 213-630-3678. B

Air Cooler, room type, w/rolling stand, \$22. 213-377-3806. B

Range, Wedgewood, 4-burner, \$75. 213-379-2980. B

Dining Room Set, table, 2 ext. leaves, 6 brown uphol. chairs, light honey colored, \$65. 213-751-8420. B

Dining Room Set, table w/2 leaves, extends 80", 4 chairs, walnut, \$20. 213-675-5654. B

Bench, small, naugahyde upholstery, \$10. 213-679-7873. B

Dryer, G.E. elec., \$45. 213-325-9875. B

Vacuum Cleaner, Electrolux auto., 4 yrs. old, 540 W., \$55. 213-671-3588. B

Crib & dresser set, Basset, \$75. 213-376-4831. B

Sofa, 6', contemporary style, beige, \$45. 213-672-5545. B

Bathroom Sink w/plumbing hardware attached, \$10. 213-423-3163. B

Sofa, antique white, 3-sec., curved, approx. 14', w/corner table, \$295. 213-832-3502. B

Miscellaneous For Sale

Swim Pool, Doughboy, 24' by 4', new liner, filter, access., \$195. 213-370-0990 after 6 p.m. C

Guitar, 7-string Dobro, \$300. 213-372-8618. C

Boat, 12' Fleetline, glassed o/plywood hull, 25 h.p. Evinrude w/controls, lge. 14" wheel trailer, \$400. 213-326-0513. C

Ski Boat, 1969 Stevens inbd., Pontiac eng., \$2,650. 714-897-5315. C

Organ, Lowrey Heritage, mahogany finish, \$500. 213-675-3931. C

TV, Admiral, b&w, 6 yrs. old, \$30. 213-320-7166. C

Scuba Equipment, dble. rig, w/dble. hose reg. & harness, \$125. 213-296-2431. C

Lot, 60'x120', residential area, some trees, Running Springs, \$4,950. 714-637-4067. C

Trailer, 1963 Ideal, 18' self-contained, extras, cabana & dolly, \$1,250. 213-325-0415. C

Walkie-Talkie, Sony, \$40. 213-327-5376. C

Fall, off black, 18", 100% human hair, \$20. 213-634-3641. C

Rifle, Mossberg, 22 carbine, w/4X rifle scope, \$50. 213-675-1077. C

Sailboat, 23' Star Class day sailer, open cockpit, \$400. 213-391-3715. C

Top, soft, & tonneau cover for 1967 Datsun Model 1600, \$35. 213-676-6390. C

Guitar, elec. amp., Richenbacher, dual pick-up, \$165. 213-675-5122. C

Adding Machine, Underwood Sundstrand, elec., \$80. 213-633-2395. C

Wig, w/container, \$30. 213-326-4459. C

Trailer, Heilite tent camper-type, alum. body, innerspring mattress, \$300. 213-569-4222. C

Pups, German shepherd, \$50. 213-375-8993. C

Home Trailer, 8' x 45' Rolla, \$1,500. 213-324-0310. C

Speaker, JBLD-130, \$65. 213-292-7471. C

Mobile Home, 1963 Biltmore, 10' x 40', 1-bdrm., unfurn., full length awning, near Hemet, \$1,950. 714-538-9370. C

Sailboat, 8' Sea Snark, w/sail & all access., 3 mos. old, \$125. 213-324-6843. C

Surfboard, 7' 10" Mobley Pintail V, \$70. 213-374-8608. C

Bicycle, Schwinn Varsity, 10-spd. Derailleur, \$30. 213-378-3838. C

Fuel Injection, for 1961 Corvette, \$150. 213-679-4120. C

Tool Box, Craftsman roll-a-way, & toolmakers tools, \$35. 714-530-2271. C

Pups, Dalmation, avail. July 13, \$25. 213-329-6848. C

Motorcycle, 1967 Victor BSA, 441 cc, \$500. 213-378-9639. C

Motorcycle, 1968 Triumph Bonneville, 650 cc, 2,000 mi., \$1,175. 213-837-3707 days. C

Miscellaneous For Sale

Motorcycle, BSA, 650 cc, 1959 eng., o/hauled recently, \$400. 213-327-8050. C

Cats, Sealpoint Siamese, had shots, \$25 ea. 213-756-2842. C

Clarinet, Olds w/case, \$80. 213-630-4188. C

Amplifier, Bell 10 w. monaural, mounted in small record storage cabinet, \$7. 213-425-5198. C

Cabin Cruiser, 21', 283 cu. in. V-8, incl. all equip. & trailer, \$2,200. 213-542-2098. C

Organ, Wurlitzer mod. 4040, oiled walnut w/ matching bench, \$800. 213-542-5387. C

Tent-Camper, 2-whl., Ted Williams, \$195. 213-633-2990. C

Boat, 16' Gaspar Avalon, Merc. 85 outbd., fully equipped, Wallstrong 15" wheel tilt trailer, \$1,600. 714-522-4340. C

Mini Bike, 3 h.p., 4-cy., 6 mos. old, \$95. 213-755-7521. C

Motorcycle, 1968 Triumph Bonneville, 650 cc, many extras, \$925. 213-372-8531. C

Motorcycle, 1963 Honda, 55 cc, trail or street, \$115. 213-375-0915. C

Trailer, 1958 Dalton, sleeps 5, stove, lge. ice box, \$400. 213-921-2116. C

TV, Packard Bell, stereo console w/AM-FM radio, \$100. 213-378-4639. C

Home, 3-bdrm., Lake Arrowhead's north shore, lge. recreation rm., 2 baths, furn., 2½ yrs. old, \$49,500. 213-476-1842. C

Home, 3-bdrm., den, 2 baths, tri-level, dble., auto. dr. gar., sep. workshop, \$37,500. 213-674-5658. C

Lot, Crestline, Club San Moritz area, \$5,000. 714-828-4853. C

Lot, 25' x 100', Big Bear City, level, trees, all utils., \$1,350. 213-598-3072. C

Piano, Hoffman upright, \$100. 805-647-4760. C

House, 2-bdrm., near Hawthorne High School, large enc. yard, \$21,000. 213-375-5009. C

Cemetery Lot, dble. interment, Inglewood Parkview lot, \$1,350. 213-672-5798. C

Stereo Console, Hoffman Floating Sound, AM-FM radio, 4-spd. record player, \$150. 213-675-8673. C

House, 4-room, on 50' x 130' lot, \$18,500. 213-671-2930. C

Mobile Home, 8' x 35' in park on El Segundo Blvd., near Northrop, \$900. 213-676-1333. C

Camera, Mamiya C-33 w/65mm & 180 mm lenses, shades, orange filter, Paramender, \$325. 213-676-7766. C

Lot, Lake Arrowhead, close to shopping, roads & u/ground utilities in, \$3,500 dn. bal. 7%, \$12,500. 213-326-8357. C

Marine Engine, late model, & reduction gear box, \$600. 213-367-7131. C

Wedding Ring Set, size 5, ½ kt., \$125. Box 1202. C

Guitar, classical, \$45. 213-676-6761. C

TV, color, 23", 1969 Packard Bell, \$425. 213-387-5743. C

Shotgun, Winchester mod. 12 skeet, 28 ga., \$140. 213-371-2531. C

TV, 23" Westinghouse, b&w, walnut console, \$100. Box 1203. C

Motorcycle, 1967 Honda, 300 Scrambler, \$495. 213-545-5995. C

Ham Radio, Swan 400 transceiver, 5-band, 400 w., w/VFO, \$335. 213-645-1274. C

House, 3-bdrm., 2 baths, cpts., dps., bltin oven, stove, h/wood floors, f/place, patio, block fence, \$29,500. 714-828-0858. C

Ski Boat, 15', 1961 Bristol hull, trailer, 80 h.p. Mercury eng., \$900. Box 1204. C

Motorcycle, 1968 Yamaha, 350 cc Scrambler, \$595. 213-534-3100. C

Motorcycle, 1968 BMW R60, 600 cc, 20,000 mi., \$1,100. 213-244-4819. C

Dog, Samoyed, male, 2½ yrs. old, \$25. 805-648-6250. C

Guitar, elec., strap & amplifier, \$80. 213-676-3379. C

Pups, Australian silky terrier, 8 wks. old, AKC, shots, \$200. 213-371-3473. C

Lapidary Set, complete, \$95. 213-377-8817. C

Airplane, 1966 Citabria, 115 h.p., 546 T.T.A.E., F.G.P., 2 chutes, \$5,000. 213-830-1589. C

Acresage, 2½ acres, near Rosamond, \$39 dn., \$39 mo., no int., \$3,900. 213-378-1026. C

Sweeper, 25", for lawn & pavement, \$10. 213-370-5423. C

Belt Massager, Samson, Formette, Mod. BV2, \$15. 213-833-5554. C

Gun Cabinet, 10-gun, Mediterranean styling, matching panel doors, \$75. 213-534-1028. C

Motorcycle, 1965 Triumph TT Bonneville, 10.5 compression, chrome, \$800. 213-754-3665. C

Motorcycle, 1966 Bultaco Sherpa S, 200 cc, new eng., \$435. 213-370-1963. C

Lot, 25' x 80', level, on hilltop, all utils. in, close to Arrowhead Lake, \$2,300. 714-892-9318. C

Trampoline, 6' x 12' Nissen professional, nylon bed w/steel frame, \$70. 213-867-0662. C

Drill Press, \$90, various other power tools sep. prices. 213-753-6277. C

Bicycle, 5-spd., w/banana seat & sissy bar, \$25. 213-677-7932. C

Seats, 3, available on charter flight, Los Angeles to London, 1 way, Sept. 10, \$110 seat. 213-671-9271. C

Gravities Unit, deluxe model, \$85. 213-325-5245. C

Golf Bag, cart, balls, set of irons, & woods, other extras, \$65. 213-532-4757. C

Wanted to Buy

Outboard Motor, 35-55 h.p., 14' boat trailer. 213-871-1406. D

Trailer Hitch for 1955 Rambler 660 Classic sedan, reasonable. 213-323-4257. D

Coin, silver, pay up to 10% depending on quantity. 213-676-3028. D

Backpacking Equipment, top quality, good condition, reasonably priced. 213-943-2043. D

Tricycle, large, in good condition. 805-483-5644. D

Couch, 6', that makes into bed. 213-545-3495. D

Rentals Offered

Apt., 3-bdrm., 2 baths, bltins, dps., cpts., fenced yd., 2 blocks from Norair, lease or \$225. 213-676-9802. G

Cabin, Green Valley Lake, \$55 wk. 213-320-2002. G

Apt., 2-bdrm., Catalina Island, sleep 6, \$150 wk. 213-323-0526. G

Vacation Trailer, 14', sleeps 5, \$35 wk. 714-528-3533. G

Duplex, 2-bdrm., cpts., dps., bltins, patio, fenced yd., children & small pets OK, Redondo Bch., \$185. 213-379-4476. G

House, 2-bdrm., modern, Inglewood, new cpt., fenced yard, \$200 mo. 213-292-9489. G

Cottage, Ocean Bch., San Diego, near Mission Bay, \$70 wk. 714-826-2007. G

Christian girl wanted to share apt. rent, Paramount area, \$135 mo. 213-630-1647. G

House, unfurn., 3-rm., enc. patio, covered carport, lge. lot, 3 miles east of Norair, \$125. 213-754-2653. G

Cabins, Lake Gregory & Crestline, sleeps 6, reserve now, \$25 w/ends; \$60 wk. 213-391-2040. G

House, 2-bdrm., rumpus rm., garden bbq pit, Normandie & 120th St., \$150 mo. 714-926-1106. G

Apt., 1,600 sq. ft., 3-bdrm., 2 full baths, bltins, 3 balcony patios, \$275. 213-323-0826. G

Rentals Wanted

House or Duplex, 2-bdrm., mother & daughter, w/fenced yd., 2 poodles, near \$100. 213-438-0998. H

Camper Truck, any w/end in July, will loan replacement car. 213-833-3788. H

Child Care

Child Care offered, home w/large fenced yard, close to L.A. Airport. 213-670-7940. I

Child Care offered, my home, licensed, Man. Bch., under 5 yrs., \$20 wk. 213-372-9954. I

Child Care wanted, live in or out, days, 2 school age, 1 infant, Torrance area. Box 1205. I

Personals

I wish to thank all my friends at Northrop for the cards, letters, flowers, & phone calls during my stay in the hospital & home. BETTY KILTZ. L

Rides and Riders

Rides Wanted

7 a.m. — 3:45 p.m.

Simi Valley to Hawthorne, Simi. Jack Serrano, Haw. Electro-Mech. ext. 667, 805-526-7532.

8 a.m. — 4:45 p.m.

San Bernardino Fwy. & 605 Fwy., West Covina. R. E. Herfert, Norair ext. 2515, 213-962-1821.

Ventura Beach area to Northrop Ventura. William A. Lucking, III, Vent. ext. 1346, 805-648-2407.

Downey Ave. & Garden Dale, Paramount. Bill Clark, Norair ext. 2052, 213-630-6446.

4:42 p.m. — 1:12 a.m.

Torrance Blvd. & Normandie, Torrance. Would prefer to ride with a lady. Sue F. Enoch, Norair ext. 4331, 213-327-6869.

Rides Offered

7 a.m. — 3:45 p.m.

Simi Valley to Hawthorne, Simi. Jack Serrano, Haw. Electro-Mech. ext. 667, 805-526-7532.

8 a.m. — 4:45 p.m.

San Bernardino Fwy. & 605 Fwy., West Covina. R. E. Herfert, Norair ext. 2515, 213-962-1821.

Personals

I wish to thank all my friends at Northrop for the flowers, cards & kind expressions of sympathy in the recent loss of my son, Michael Dixon. JOYCE WEBER. L

I wish to thank all my friends at Northrop for their many courtesies throughout the years & their expressions of cordial good wishes upon my retirement. STELLA MURRAY. L

We are deeply appreciative for the heart-warming expressions of sympathy extended to us on the recent loss of my dad. MARION & ART WEBB. L

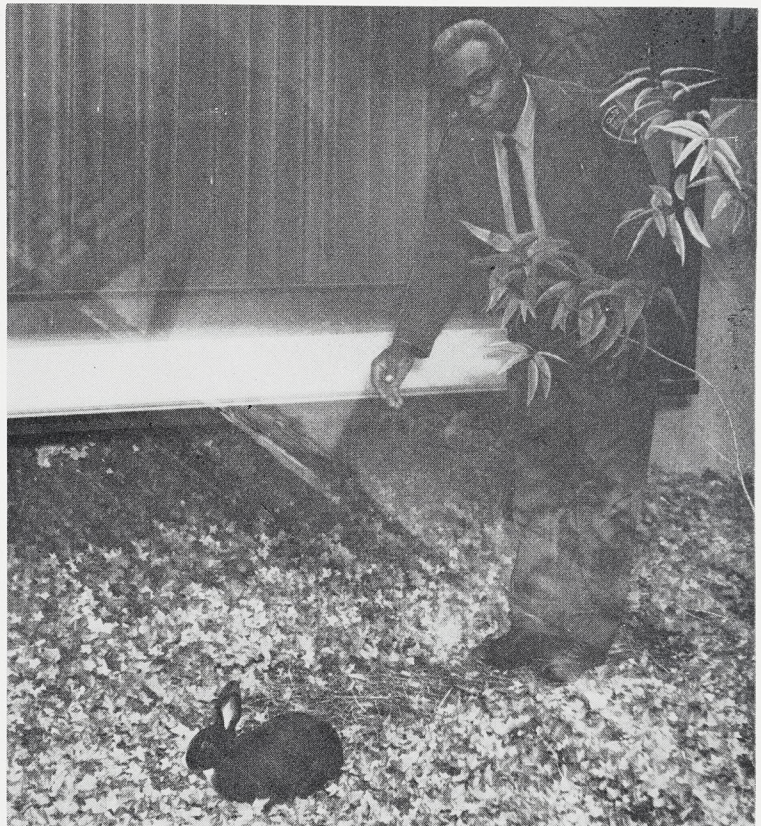
For Sale or Trade

Playhouse, on steel poles, ladder to 6' high platform, \$20 or trade in on mini bike. 213-397-3504. M

BLOODMOBILE GETS 230 PINTS

Northrop's credit with the American Red Cross blood program was increased by 230 pints last month as a result of a bloodmobile visit to the Hawthorne complex.

Volunteer donors from all Northrop facilities and divisions in the area turned out for the final bloodmobile visit prior to the summer vacation period, traditionally a time when blood is most needed.



NEW MASCOT?—Security Guard Miner Gatson, stationed at the Electronics Division, tries to get the attention of an unscheduled visitor to the Hawthorne facility.

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Editor-in-Chief Bryan Weickersheimer

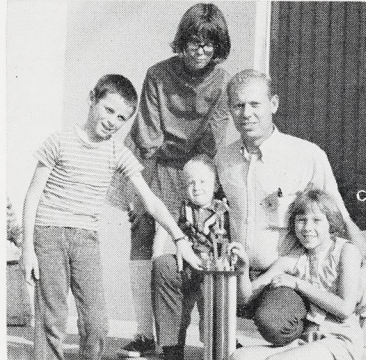
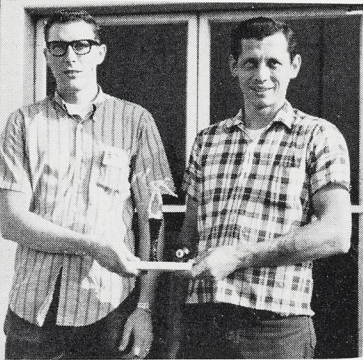
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Editor—Ventura Division Peter Toll

Editor—Business Affairs Rosemary Hussey

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WINNERS in the recently concluded second shift pool tournament are, front row, above, left, Loy Pennington, Don Phillips and Leo Gross. Back, Tom Barnes and Larry Blansett. Below, left, Wayne Bowman, left, and Tom Reid with "8-Ball on Break" awards. Below right, Gene, Teresa, Bryan and Tina Pennington take a share of daddy's trophy since their moral support was a vital factor in his winning.

Pennington, Barnes Take First in Second Shift Pool

Loy Pennington and Tom Barnes took first place in the recently concluded Second Shift 8-Ball Pool League. Don Phillips and Larry Blansett were second with Wayne Anderson and Leo Gross third.

Tom Reid and Wayne Bowman took the "8-Ball on Break" awards.

The tournament had to go into a playoff to determine third place, according to Mr. Pennington. "It took three games and went right down to the last 8-ball."

The tournament proved the enthusiasm of the players, he reported. During the play Don Phillips and Tom Barnes went to

work at another company on days while Leo Gross transferred to days at Anaheim.

"Yet all three never missed a game night," Mr. Pennington reported. "When you consider that we played at 12:30 a.m., you can see how much they wanted to play in our league."

He also paid tribute to the players' wives who came out at midnight to cheer them on. "Many of them had to work the next day also. From audience to players, we have never had a better or more enthusiastically supported tournament," Mr. Pennington added.

GASICH

(Continued from page 1)

Developing research led also to present work with underwater targets, jet-propelled drones, the Parawing — a parachute that glides—and work with composites. The division is also deeply interested in reconnaissance drones, logistic spacecraft and other advanced ideas.

The talk concluded with a detailed discussion of the management principles which have been responsible for increasing efficiency of Ventura operations.

PLEDGE

(Continued from page 1)

participants in the Defense Contractor Cost Reduction Program had recorded cost benefits to the Department of Defense exceeding half-a-billion dollars in the first half of fiscal 1969.

"It is my sincere belief that this Department and industry — working together — can give our government the best value it has ever received in the defense materiel and equipment it needs and can strengthen our procurement practices far beyond the norm of adequacy," Mr. Laird stated.

HART

(Continued from page 1)

administration.

The summer hire program has drawn cooperation from top industrial firms. It is devoted to helping the business community meet its obligations to provide for young people.

The Electro-Mechanical Division has a major role in the program. Frank Lynch, vice president and general manager, is a member of the local NAB Advisory Council. Martin A. Severson, assistant to the general manager, and Dick Stuffer, chief, Personnel and Administration, are acting as campaign managers to secure pledges for 500 summer hire jobs for youths.

Holiday Schedules Include Extra-Long Yearend Vacation

Northrop Corporation personnel will enjoy a paid holiday Friday, July 4, in observance of Independence Day.

For those who like to plan their holidays in advance, the holidays for the remainder of the year are: Monday, September 1, Labor Day; and Thursday, November 27, Thanksgiving.

Northrop's traditional yearend holiday will extend over 12 days this year by applying two floating holidays for 1969 and one for 1970. Work ends with the close of shifts December 23 and resumes again January 5.

Brady Co-Authors Personnel Article

Thomas P. Brady, Personnel Research, Electro-Mechanical Division, collaborated with Jay R. Schuster, consulting associate, Systems Development Corporation, on an article that appeared in the March 1969 issue of Personnel Journal, a magazine for Industrial Relations and Personnel Management.

The article, called "Applying Employee Attitudes to a Decision-Making Process," dealt with detailed surveys of employees and supervisors to determine attitudes on pay problems.

RESEARCH

(Continued from page 1)

The operations analysis personnel are also pursuing modeling studies in other related areas such as off-line vs on-line test requirements. Others cover automating the engineering analysis of test point selection, prime equipment selection (for monitoring), and test point selection for preliminary proposals and bids.

According to Joe Alfieri, Systems Engineering supervisor, and W. Q. Nicholson, R&D chief, the projects are tailored toward providing a quantitative, technically sound basis for selecting equipment for automatic monitoring.



STUDENTS of the forklift training class are told safety precautions to use with the roll fork by Randy Lee, right, instructor. The group is part of 175 Electro-Mechanical employees who have received instruction in using and driving heavy equipment. From left they are Ray Longbotham, Norman Knitter, R. T. Hollenbeck, Al Dunton and H. C. Kolb.

New Personnel Paging Service Reduces Costs

An improved method of paging personnel has been introduced at Electro-Mechanical Division Orangethorpe plant areas has saved the service of one telephone operator and produced other indirect savings, according to M. E. Skilling, chief plant engineer.

Previously, page calls were passed to a switchboard operator who made the call on the page system.

The new system provides direct access to the page system without going through a switchboard operator, eliminating duplicate handling of page calls. The page system is reached directly by dialing 19 from office telephones.

Feedback problems caused when a telephone is near a loudspeaker was eliminated by recording the calls on magnetic tape and delaying the transmission

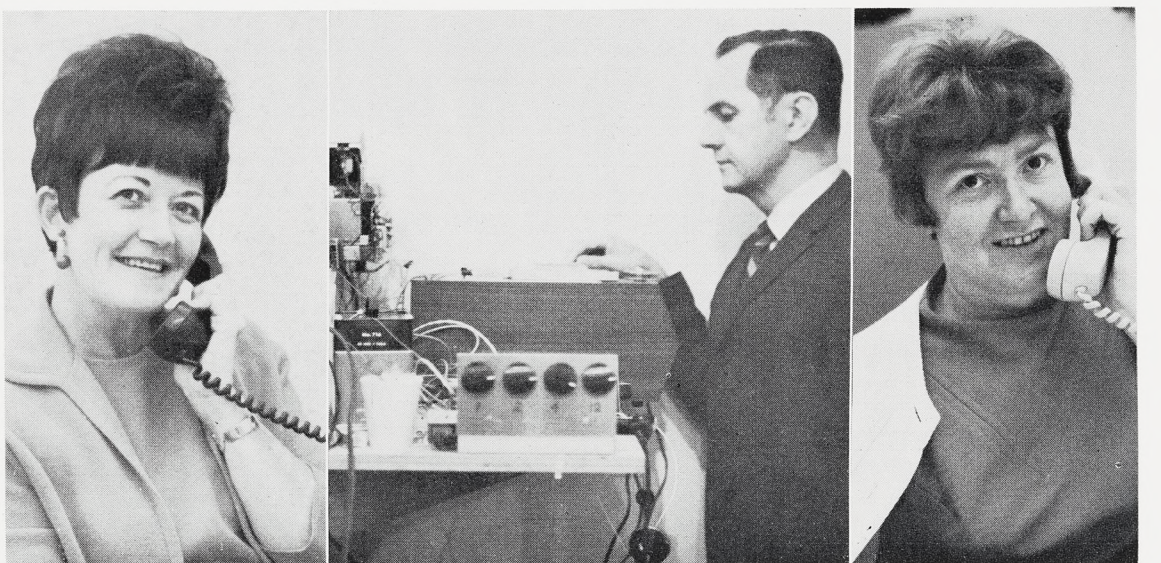
for nine seconds.

Equipment to connect the page system to the telephone system was provided by Pacific Telephone. Kathy Ruddy, chief, Communications and Mail, John Isaacs, electrical engineer, and Jack Lahn, electrical maintenance foreman, handled the modifications for the system.

VISITS CHANGED

Regular visits of the Automobile Association of America Representative Randy Barry to the Electro-Mechanical Division, Anaheim, has been changed from Mondays to Wednesdays.

Mr. Barry, representing the Automobile Club of Southern California, will be at the Personnel Activities office from 11 a.m. to 12:30 p.m. daily.



USING THE PAGING system are Jan Peterson, left, Electronics Production area, and Lola D'Andrea, right, Product Assurance, while John

Isaacs, center, Industrial Engineering, adjusts the recorder which is the heart of the system.

GEANA MONTGOMERY PAINTS COVERS FOR CBS MUSIC RECORD ALBUMS

Geana Lynn, daughter of Richard L. Montgomery, chief of Manufacturing Control, Warehousing, Traffic and Transportation, Electro-Mechanical Division, will paint covers for CBS record albums.

Her work was seen by the rec-

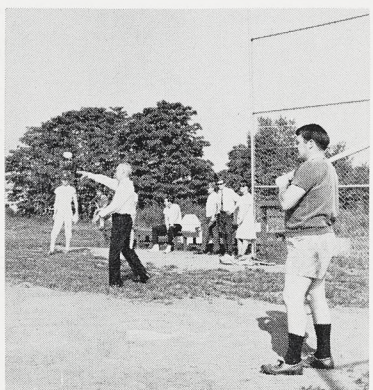
ord company executives and the contract resulted.

Geana has been painting since she was 12.

Now 23, Geana has progressed to professional status with a minimum of instructions.

WOMEN'S CLUB HAS ORGAN RECITAL

The NRC Women's Club presented an organ recital by Robert Zellin of Averett's Music Company at the NRC Clubhouse on June 26, according to Ann Dean, president of the Electro-Mechanical Division Women's Club.



THROWING OUT the first ball to start the second intramural softball season at Northrop-Huntsville is J. A. Barclay, Huntsville Operations manager. Thirty-five per cent of the men at Huntsville participate in this program which will continue through August 26.

NORTHROP NEWS

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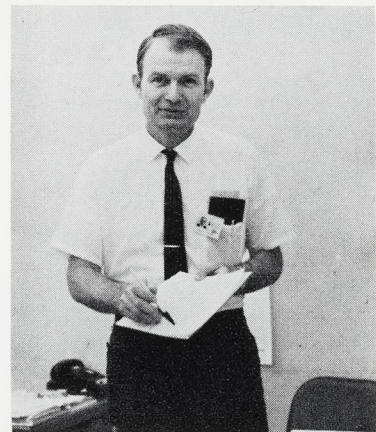
Leibert Wins Second Term As President

Peter J. Leibert, general supervisor and project engineer of the TEAMS program, has been elected to a second term as president of the board of trustees of the Exceptional Children Foundation.

The foundation is one of the nation's oldest and largest non-profit, nonsectarian organizations serving the mentally retarded. It operates 29 training classes, a guidance center, two sheltered workshops, a resident home, provides a summer camp and recreational activities.

Mr. Leibert has been with Automation Systems section at Anaheim for the past nine-and-a-half years. His present project, TEAMS (Test Evaluation and Monitoring Systems) recently passed the Navy's technical and operational evaluations and is now service approved. The first destroyer escort class ship, the USS Knox, will receive this equipment in October.

Mr. Leibert's mother is also active in working for the retarded,



Peter Leibert

being on the board of trustees of the Riverside County Retarded Children Association. At a recent California council for Retarded Children Convention, they were the only mother and son delegate combination representing their respective organizations.

SERVICE PINS ARE PRESENTED TO FIVE

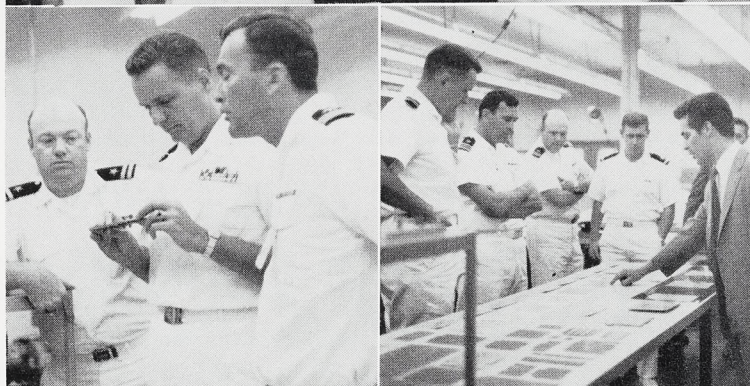
Five Electro-Mechanical Division personnel will receive 15 and 20-year service pins in July.

George Horner, Material Coordination and Follow-up, completes 20 years' service with Northrop. Fifteen-year veterans are Roy Steinestel, Opto-Mechanical Development Fabrication; Edward G. Mosher, Graphic Arts; John Burke, Security; and Robert W. Harrison, Test Operations.

CAMPING

NRC Electro-Mechanical Division Camper and Trailer Club have set an outing for July 26 and 27 at Oak Springs Ranch, Hemet, according to Al Fredette.

The campsite features swimming pool, rifle and skeet range and facilities for trail hiking, horseback riding and parking spaces.



CAPTAIN of the USS Coontz, Commander Donald P. Roane, right, top picture, and members of his staff, from left, Ensign Jack McSpadden, Lt. Commander Pat Brisbois, Lieutenant Clark West, and Lieutenant Keith Ott, are welcomed to the Electro-Mechanical Division by Tom Quayle. Commander Roane and his crew have been conducting deployment environment tests of the Northrop-built TEAMS aboard the Coontz. Below, from left, Lieutenant Ott, Commander Roane and Lt. Commander Brisbois inspect a printed circuit used in TEAMS. Right below, Northrop's Jim Prater explains steps in building TEAMS.

Steel Magazine Features Electrostatic Painting

The Electro-Mechanical Division's electrostatic painting of Boeing 747 stringers was the subject of an article in a recent issue of Steel Magazine.

Stringers are the slender longitudinal aluminum braces running the length of the fuselage to which the outer skins of the plane are attached. Electrostatic painting is a system of magnetically drawing paint onto the parts.

The article quoted Northrop's M. A. deLubine as saying that the electrostatic painting system trims more than 500 pounds from each ship set of stringers used on the 747.

The system works on the principle that opposite electrical

charges attract each other. The stringers are grounded with a positive charge and a negative charge is applied to the paint gun. The charged paint particles are then magnetically drawn to the stringers' parts.

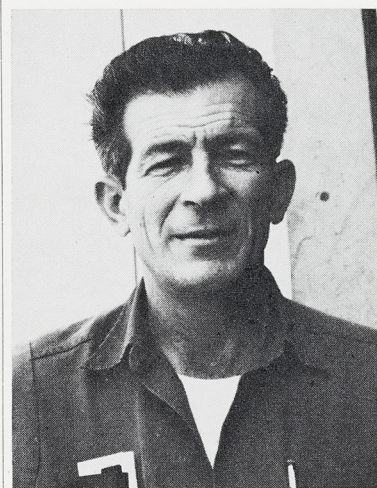
The paint coatings on the stringers painted electrostatically coated are .07 mil mean thickness. If painted by hand the thickness would be 1.5 mil.

The painting is done in a special facility in Anaheim in what is nicknamed the "car wash" because the process line moves the formed and racked stringers on an automatic overhead transport conveyor.

(See STRINGERS, page 6)

Wally Polk Finds Quick Use for First Aid After Completing Class

The Electro-Mechanical First Aid Class came in handy for Wally Polk, electrician with In-



Wally Polk

dustrial Engineering. Just after completing the course he was able to use his knowledge when a traffic accident occurred near the Orangethorpe facility.

Seeing two cars hit head on, he stopped to help. One of the victims was the wife of Richard Rupert, Electro-Mechanical Division Receiving and Inspection. Mrs. Rupert suffered shock and a cut on her neck. Mr. Polk rendered first aid treatment for shock and stopped the blood with a compress made from a facial tissue.

Mr. Polk has been with Northrop for three years. He had previous first aid training, but said the Electro-Mechanical course, taught by Safety Engineer Al Van Der Most, taught him many new techniques.

Coontz Commander Commends TEAMS

Commander Donald P. Roane, captain of the USS Coontz, has commended performance of the Northrop-built AN / SSM-5 Test Evaluation and Monitoring System (TEAMS) in a deployment environment.

Commander Roane visited the Electro-Mechanical Division on July 9 in company with Lt. Commander Pat Brisbois, his executive officer, Lieutenant Keith Ott, operations officer, Lieutenant Clark West, and Ensign Jack McSpadden.

After being welcomed by Thomas H. Quayle, vice president and manager, Anaheim department, the Navy group was shown through the TEAMS assembly area by M. A. Seeley, and then was briefed on the TEAMS pro-

gram by Roger Barquist, and on TEAMS application by W. Q. Nicholson.

TEAMS was originally installed on the Coontz while the ship was under the command of Commander E. Dale Geiger. Commander Roane took over command in February at the end of the TEAMS operational evaluation tests. He then conducted the evaluation of the AN/SSM-5 TEAMS in the deployment environment. This was done during a six months cruise with prolonged periods at sea.

IDEP Re-elects Dave Kessler to Advisory Board

David Kessler, Interagency Data Exchange Program (IDEP) representative for the Electro-Mechanical Division, was recently elected to a two-year term as a member of the Contractors Advisory Board.

IDEP is sponsored by the U.S. Armed Forces and NASA to disseminate component test data and technical information to promote economy and standardization in government programs.

More than 200 DOD NASA contractors and government activities in the United States and Canada are participating. The Contractors Advisory Board is composed of 14 representatives elected by the participating activities to provide the liaison with the government directorate in connection with IDEP administration and operations.

Mr. Kessler, supervisor of Availability Engineering and Product Analysis, has been an IDEP representative for seven years and a member of the advisory board for four. He is past chairman of the Contractors Advisory Board.



IN TRAINING for the Championship Pie Eating Contest at the upcoming Electro-Mechanical Division Family Picnic are Otto Busler and Vern Woodsmall. Chet Guzinski, center, referees the match. The pie eating contest is but one of the fun events set for the picnic which will be held August 24. Randy Lee, chairman of the Special Events Committee, personally promises \$25 worth of fun for your 25 cent ticket.

NORTHROP NEWSMAKERS

G. L. Connell and Dr. Ypgupta, Northrop Corporate Laboratories, have co-authored an article for the Journal of Physics and Chemistry of Solids.

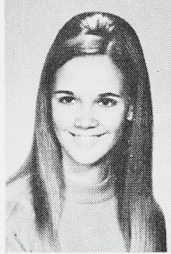
W. H. (Bill) Freeman, Ventura, has been elected to the board of directors of the Decelerator Technology Committee, American Institute of Aeronautics and Astronautics.

Theo Knacke, Ventura, will participate in a conference of the Advisory Group for Aerospace Research and Development at Braunschweig, Germany, September 15-19. The panel advises NATO.

Jerry Sizelove, Industrial Security, Electro-Mechanical Division, recently completed the Industrial Security Management Course, sponsored by the U.S. Army Intelligence School, Fort Holabird,

Chris Kunhart Is Finalist in 'Smile' Contest

Christine (Chris) Kunhart, daughter of Mrs. Agnes Kunhart, secretary in the Electronics Division Purchasing section, was one of 10 finalists in the Miss Smile contest, sponsored by the Broadway Department Stores.



Chris, 18, was entered in the contest by her mother. She was graduated last month from Morningside High School, Inglewood, and plans to enter El Camino Junior College this fall.

A natural artist, Chris recently received an achievement award from the Bank of America for her pencil sketch of the late Senator Robert F. Kennedy, and won first place in a poster contest sponsored by the Lawyers' Wives of the Centinela Valley. She also has received a Certificate of Merit for scholastic achievement from the Inglewood Unified School District.

Maryland. The course was held in San Diego.

Stellan Knoos, Northrop Corporate Laboratories, has prepared a paper titled "Study of a Bypass Piston Shock Tube" for presentation at the Seventh International Shock Tube Symposium at Toronto.

J. Raymond, Northrop Corporate Laboratories, will serve as a guest lecturer for a course on Radiation Effects on Semiconductors to be presented July 21 to August 1 by the University of California Extension at UCLA.

W. A. Coonfield, Northrop Corporate Laboratories, has prepared a paper titled "Communications: To Be or Not to Be" for presentation before the American Society of Industrial Engineers.

James W. Buttrey and John H. Hanson, both Aircraft Division, have served as panelists for a Technical Arts Seminar designed to motivate and update instructors in industry related subjects held at Cerritos College.

GENERAL PRAISES BRIGHAM'S WORK

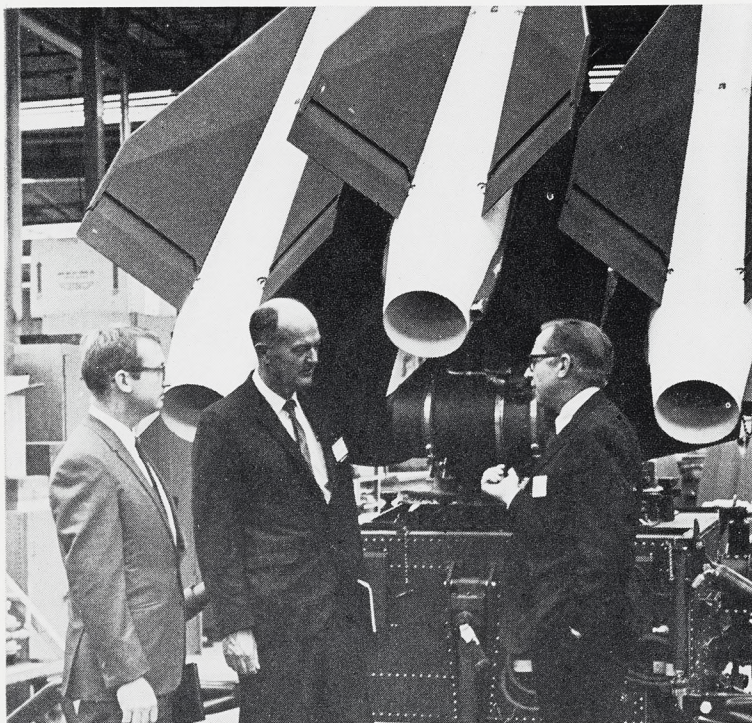
Northrop's B. L. Brigham was commended by Lt. General Sam Maddux, Jr., commander, Air Training Command, in a letter to F. W. Lloyd, vice president and general manager, Aircraft Division.

General Maddux commended Mr. Brigham's contributions to the Training Command's T-38 air safety efforts.

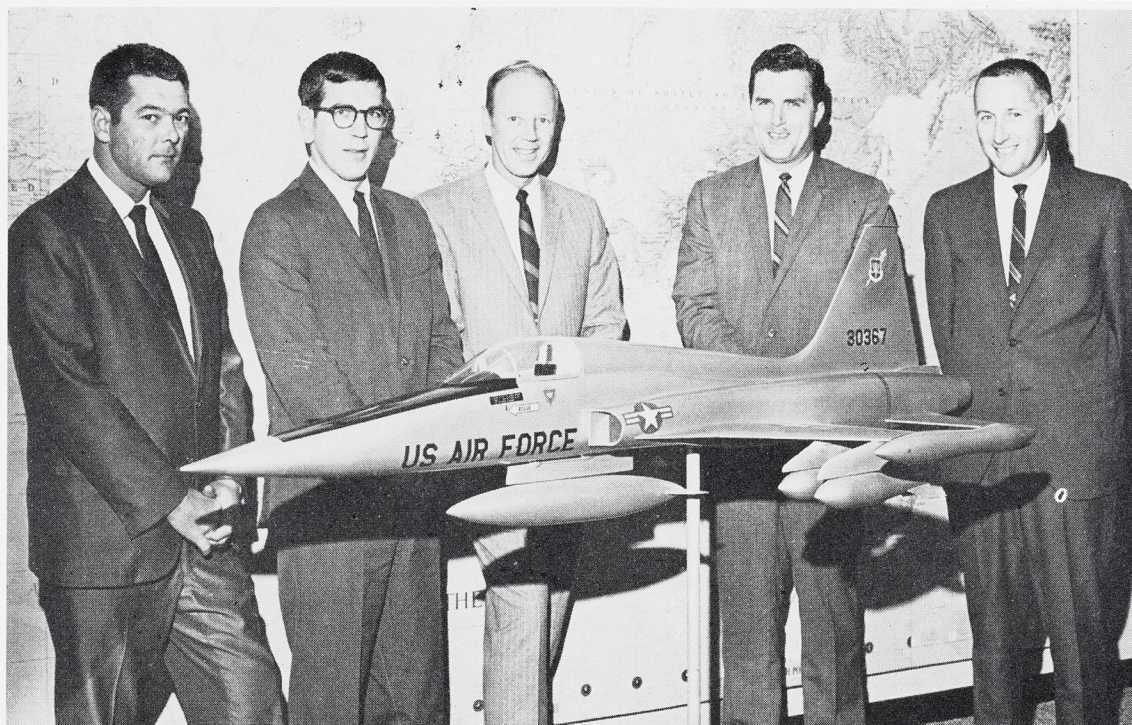
"Mr. Brigham's willingness to work long hours in pursuit of cause factors, coupled with his expertise and technical knowledge, have provided our investigation boards with invaluable data on which to base findings and recommendations," General Maddux wrote. "Without qualification, I can say that Mr. Brigham has been most cooperative and dedicated."

Mr. Brigham has been with Northrop since 1952. He served as a senior technical representative before joining the division's Systems Safety branch in 1961.

VIEWING HAWK FACILITIES



SCIENTISTS VISIT—Frank W. Lynch, right, vice president and Electro-Mechanical Division general manager, shows U.S. Army Hawk Missile System production facilities to two Redstone Arsenal visitors. They are Dr. William C. McCorkle, Jr., left, director of Advanced Systems Laboratory, and Dr. John L. McDaniel, technical director, Research and Engineering Directorate.



GRAND FINALE to a 10-month tour of duty with Northrop for four USAF-AFIT Education With Industry officers was presentation of graduation certificates by Gaylord Anderson, center,

Aircraft Division manager of Product Support. Officers, from left, are Captains C. B. Lowery, Jr., David Martin, Lee Whitley and Kenneth Hughes.

HERE 10 MONTHS

USAF Officers Complete EWI Training

Graduation certificates were presented to four USAF officers last month at the Aircraft Division. It was on the eve of their departure for new duty assignments following a 10-month study

program that included time spent at all of Northrop Corporation's major divisions and subsidiaries.

Receiving certificates were USAF Captains Kenneth Hughes, C. B. Lowery, Jr., David Martin and Lee Whitley.

The officers were taking part in the USAF-Air Force Institute of Technology Education With Industry program. They arrived at Northrop last September.

Over their 10-month study period, the officers studied Northrop principles, policies, procedures and problem-solving techniques in

order to further their understanding of management skills. Included were visits to major organizations and functions for varying lengths of time.

Gaylord Anderson, manager of Product Support, presented the graduation certificates.

Northrop Corporation has been an active participant in the USAF-AFIT Education With Industry program since 1951. With the graduation of the latest group of officers, 41 trainees have completed their EWI requirements at Northrop.

J. D. Movius Fills Key Position in Corporate Labs

John D. Movius has joined the staff of Northrop Corporate Laboratories as director, Technology Analysis and Plans, according to Dr. D. A. Hicks, vice president, Corporate Research and manager, Northrop Corporate Laboratories.



Mr. Movius

Mr. Movius has just completed a nine-month assignment at Stanford University as a Sloan Executive Fellow under Northrop sponsorship. He holds a mechanical engineering degree from Stevens Institute of Technology. Mr. Movius has served as regional director in Northrop's Eastern Office, Washington, D.C.

Dr. Hicks explained Mr. Movius' group has the objective to identify, analyze, and recommend for study the technological barriers which must be overcome for the successful attainment of the divisions' and subsidiaries' long range product goals. When the recommended research is initiated, actual work can be performed in either the Corporate Laboratories or through the Associated Research Program, whereby technical studies are supported by NCL at Northrop divisions and subsidiaries best suited to perform them, Dr. Hicks added. Through the above efforts, Mr. Movius' group serves as a technical interface and catalyst for communications of division research requirements to NCL and for bringing about more widespread technical communications between various Northrop elements.

Mr. Movius is being assisted in his work by Doctors Donovan Pretzer, George Mills, and Charles Lombard.

Hallicrafters Company Joins IBM In Quest for B-1A Aircraft Contract

International Business Machines' Federal Systems Division has selected The Hallicrafters Company, Northrop subsidiary, as the electronic countermeasures team member in IBM's bid for the Avionics portion of the B-1A advanced strategic bomber contract.

Formerly called the Advanced Manned Strategic Aircraft (AMSA), the B-1A is the USAF replacement for the B-52, for which Hallicrafters provided ECM

equipment.

Hallicrafters, which has been working with IBM over the past four years, performing AMSA configuration studies, will be involved in working with IBM on a proposal for the Active ECM Subsystem requirements of the Avionics contract.

Hallicrafters specializes in the design and manufacture of electronic and communications equipment and systems for defense, aerospace and industrial use.

BOEING 747 STRINGERS



STRINGERS are an important contribution of the Electro-Mechanical Division to the Boeing 747 program. A recent issue of Steel Magazine told how electrostatic painting is used in preparing the stringers.

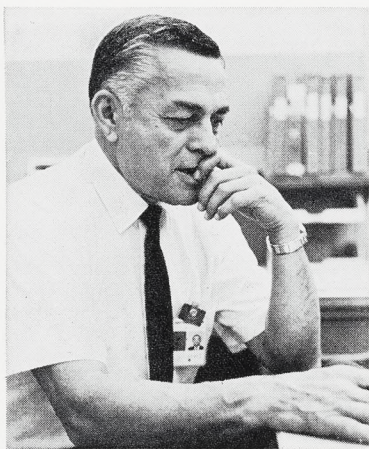


PART OF HERITAGE—O. G. (Orv) Hood displays war bonnet given to him by a Ute chief. Mr. Hood, of Ute and Navajo heritage, is a methods engineer.

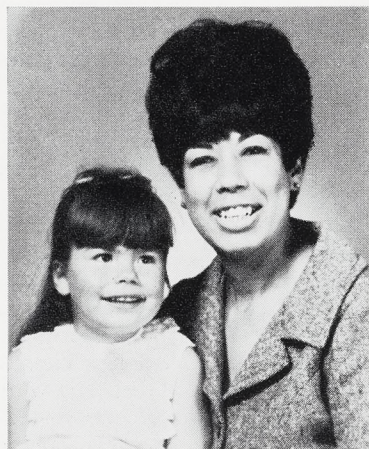


FULL-BLOODED — Brothers Orville, left, and John Thomas work on the 747. Orville is a trainee and John has been with Northrop six

months. Both are full-blooded Kickapoo Indians, born and raised on the Kickapoo Reservation near Horton, Kansas.



OLD TIMER—C. D. (Doug) Factor, above, has been a Northrop engineer 26 years; he is half-Chickasaw. Mrs. Doralee Brown, below with daughter, is a full-blooded Indian who works on the switchboard.



MORE THAN 30 IN WORK FORCE Indians In Aircraft—From Engineers to Mechanics

What's in a name? If your name is Yellow Cloud, Early Riser or Roadrunner, quite a bit.

All three are full-blooded American Indians, part of over 30 Indians employed at the Aircraft Division. Yellow Cloud and Early Riser work on the 747 and Roadrunner is a medical clerk.

Indians at Northrop work in a variety of areas. One has been here almost 27 years and another has just been employed a month. Eighteen are directly connected with 747 operations.

Doralee Brown, for example, is a full-blooded Indian with heritage in the Paiute and Shoshone tribes of Northern California and Utah and the Wyott tribe of California.

South Bayan

Mrs. Brown is a switchboard operator and has been at Northrop four years. She was born in Riverside and educated at Gardena High School. Her parents met at a government-run Indian school in Riverside. Her husband is a full-blooded Apache.

The Thomas brothers, Orville, 25, and John, 28, are 747 structural mechanics. Orville's Indian name is Yellow Cloud. The Thomases are full-blooded Kick-

apoos, born on the Kickapoo Reservation in Horton, Kansas.

John has been with Northrop six months and Orville, an employee for three months, is a trainee. Both are married and live in Bell Gardens and Cudahy, respectively.

O. G. (Orv) Hood, 33, a methods engineer on the 747 Study Team, is part Navajo and part Southern Ute; he was born on the Northern Navajo Reservation near Tuba City, Arizona.

A Choice

Like the rest of his Indian counterparts, Mr. Hood decided to leave the limited environment of the reservation "because the chances of advancement there are nonexistent, both educationally and financially."

As a child he moved to the Southern Ute Reservation and graduated from high school in Durango, Colorado. He has a bachelor's degree from Oklahoma City University and a master's in business administration from California State College at Long Beach.

A Northrop employee for five months, he is active in Southern California Indian affairs; he was one of the Indians in charge of

the recent All-American Indian Week events at the Great Western Showgrounds and (since demolished for a park) Wrigley Field.

LaVern Valdo Zaragoza, 25, has two Indian names. She is half Hopi (Roadrunner) and half Acoma (Corn). Mrs. Zaragoza has been a clerk for three years at the main Medical Center.

There were six boys and six girls in her family at Oraibi in northern Arizona. Oraibi, home of the famous Indian firefighters, is reputed to be the oldest active Indian village in North America. Her husband, Richard, is in the 747 Paint and Process department.

With Northrop since October 1942 is C. D. (Doug) Factor, 60. He is half Chickasaw and was born in Durant, Oklahoma. A configuration management engineer senior, he lives in Northridge with his wife and daughter.

Two Names

Vince Salway, 40, is an 11-year Northrop employee who is a foreman in 747 subassembly. Mr. Salway is a three-quarter Sioux who answers to Early Riser—if you can say it in Sioux. Mr. Salway is unable to spell his Indian name, although he can pronounce it.

Indian languages, generally, are not written, but passed verbally from generation to generation. Mr. Salway was born and raised on the Sioux Reservation near Pine Ridge, South Dakota, with seven brothers and sisters. He lives in Hawthorne.

But the man from the biggest family is Michael Fairbanks, 49, a 747 structural mechanic and five-year Northrop employee. There were 17 youngsters in his family.

Chippewa

Mr. Fairbanks, a Chippewa, was born and raised on the reservation near Deer River, Minnesota. It is a farming and logging town 90 miles from Canada. Mr. Fairbanks has lived in Los Angeles 17 years.

Mr. Fairbanks was on vacation when the photographs accompanying this article were made.

Still another full-blooded Indian is Jim Chupco, a Creek. A 747 structural mechanic, he has been at Northrop a month after 20 years in the U.S. Navy.

Mr. Chupco, 40, lives in North Long Beach with his wife and four children. He was born in Wewoka, Oklahoma.

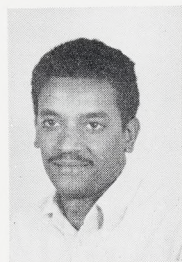


NORTHROP INDIANS — Among the American Indians at Northrop are Jim Chupco, left, a Creek who is a 747 structural mechanic; LaVern Zaragoza, center,

a Hopi-Acoma who is a clerk in the Medical Center and Vince Salway, right, Sioux, a foreman in 747 subassembly.

WHAT DO YOU THINK?

What Type of Safety Equipment Would You Like to See on Autos



Mr. Watson

Joe Watson, Environmental Test Technician, Electronics:

I'd like to see all cars equipped with disc brakes. I'm not certain, but I would imagine that brake failure is a major cause of the large majority of accidents.

Margaret Fisk, Shipping, Ventura:

There are already many safety features. If people would just use all of the safety equipment now available there would be a lot less injuries. Many people I know don't use their safety belts.



Mrs. Fisk



Mr. Marston

"Skip" Marston, Status Reporting coordinator, Aircraft:

I'd like to see disc brakes become standard equipment on all cars. I have them on my car and they do give you better stopping power and never fade out in water.

Gloria Munoz, electronics assembler, Electro-Mechanical:

Once I had the brakes go out on my car when it was only one year old. Ever since I have wished they would put some kind of device on the dash that would let you know when your brakes aren't working.



Mrs. Munoz



Mrs. Matsuura

Sally Matsuura, secretary, Electronics:

Instead of safety equipment, I think somebody should come up with an idea on how to produce better drivers. Then there wouldn't be any need for safety equipment.

Lou Gabriel, Industrial Engineering, Ventura:

Speed governors. There's no reason for a standard car to go more than 65 or 70 miles per hour. And why do they sell cars with such big engines? I know I never use all that power.



Mr. Gabriel



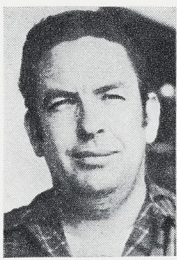
Miss Anderson

Vicki Anderson, clerk, Aircraft:

I feel automobile frames should be made stronger. I think if they were stronger there wouldn't be as many injuries in low speed accidents.

Herb Fitzpatrick, Industrial Engineering, Electro-Mechanical:

I'd like to see something done about bumpers. They should be made stronger and maybe even set with springs or some sort of hydraulic device to take up sudden shock.



Mr. Fitzpatrick

LAST CALL FOR CIRCUS DUCATS

Aircraft Division's NRC has acquired 500 reserved seat tickets for the 6:30 p.m. August 3 performance of the Ringling Brothers and Barnum Bailey Circus at the Forum, Inglewood. Regular \$4 tickets are available through Personnel Activities and NRC ticket outlets for \$3 each.



WELCOME ABOARD, says Commander Box, Los Alamitos NAS to Bill Short who is accompanied by his father, Doug Short of Northrop, his mother and sister Marlene. (U.S. Navy photo)

Doug Short's Son Honored By Coaches

Bill Short, son of Doug Short, analyst, Logistics, Electro-Mechanical Division, was named Athlete of the Year at California State College-Fullerton's All-Sports banquet recently.

The Athlete of the Year is chosen by vote of all the college coaches.

Bill was also voted most valuable in track for his javelin exploits. He ranks third in the nation in the college division and has qualified for both the NCAA College Division and University championships to be played later this year. He was All-American in track last year, ranking fourth in the nation, and also took third in the javelin throw at the NCAA meet in Ashland, Ohio.

Bill was recently sworn into the Navy Flight Officer program. He will leave for Pensacola to begin training this month.

Navy Gives Commendations For Valor to James Born

A Northrop Ventura power truck driver, James T. (Jim) Born, has received two Navy commendation medals for valor while serving in the jungles of Vietnam a little over a year ago.

Navy Boatswains Mate Second Class Born was in the Navy equivalent of the elite Green Berets, the SEALs, and worked behind

enemy lines on reconnaissance missions.

Mr. Born, now 22, and active in the Naval Reserve, went on 39 combat missions and has now received a total of eight U.S. and Vietnamese medals. He was recommended twice for the Bronze Star.

He said the SEAL teams were comprised of seven men, each with at least 18 months of special training. The team would steal ashore at night and harass the enemy. Each man was armed with an automatic rifle, pistol, knife, hand grenades and demolition materiel.

Mr. Born has worked at Ventura a year.



IN VIETNAM—Navy SEAL Jim Born, now working at Northrop Ventura, is pictured with some of his gear in Vietnam last year.

TRAP AND SKEET

Aircraft Division's NRC Trap and Skeet Club will hold its regular shoot July 27 at the Golden Valley Gun Club, Pacoima. Sign-ups begin at 8:30 a.m., competition in five handicap classes at 9 a.m.

RODEO TYPES

Riley Girls Win Many Riding Trophies

Barbara, 12, and Kathy, 11, daughters of Electro-Mechanical Division's Jerry Riley, are champion riders and have 35 trophies between them to prove it.

Lately the riding Riley girls have been joined by their brother Tommy, 5, who recently rode a full-size horse in his first show, and another brother, 22-month-old Pat, who can now straddle a pony all by himself.

Both young ladies started show riding in 1967 and now belong to two clubs, the Equestrian Trails, Inc. and the Norco Valley

Riders. They participate in club shows every month. Kathy rides with the 12 years and under group and Barbara rides in the 13-17 year age group. Both are leading for high-point trophies for the year in the Norco club and Barbara won the perpetual trophy for being outstanding junior club member for the year 1967-68. Their horses are Rebel, 11 years, and Ringo 6 years.

The girls participate in gymkhana (speed) events, as well as the rodeo-type pole-bending and barrel racing. In pole-bending the

rider must weave around six poles and return. Barrel racing, which requires perfect coordination between horse and rider, is a sharp-turned pattern around closely set barrels.

Barbara and Kathy got their interest in riding from their parents. Jerry worked with harness racing from high school until he quit in 1951 to join Northrop. He has won 187 trophies himself with their horse Rebel. His wife, Florence, is one of the few licensed women harness racing drivers.



BARBARA AND KATHY RILEY show their horsemanship in barrel racing. Both girls have



won many trophies with their riding skill. They inherited love of animals from their parents.

Blind Navigator Guides Kranen to Race Victory

George Kranen, presently programming for the Electro-Mechanical Division NAS-2070 automatic test system, drove the winning car in the recent Braille Sports Car Rally. His navigator in the rally was a 16-year-old boy who has been blind since birth.

The rally has been held annually for the last eight years through cooperation of the Braille Institute of America and the California Sports Car Club. This

and then into Orange County before ending at the Huntington Harbor Beach Club.

The drivers take their directions from the blind children who have route instructions written in Braille. Sixty-one cars were entered. The navigators ranged in ages from 13 to 19. Mr. Kranen's navigator was Allen Gummerus of Glendale.

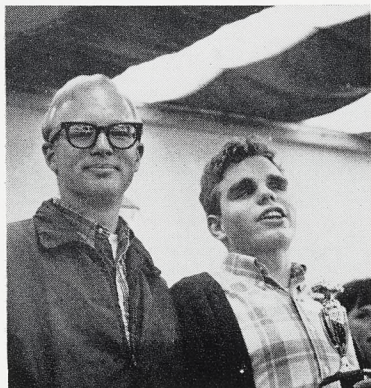
"The course is set by a rally master who drives it several times to get an average time," Mr. Kranen said. "This year's rally master was Dan Patrick, former Electro-Mechanical Division employee. The course is divided into four 'legs,' and we compete against the official time rather than against each other. The driver and navigator who come closest for the four legs wins."

Pretty Close

Drivers do not know what this time is. Mr. Kranen and Allen drove the course in about four-and-a-half hours. They were 9.41 minutes off the official time for the entire course.

"The winning navigator gets a checkered racing flag, a trophy, and his name engraved on a permanent trophy in the rally headquarters."

And what do the drivers get? "A warm feeling," Mr. Kranen said.



GEORGE KRANEN and his blind navigator, Allen Gummerus (right) smile as they learn that they have won the Braille Sports Car Rally.

year the rally course began at the institute on Vermont in Hollywood. It went to San Fernando Valley, Topanga Canyon, and down the coast to Long Beach

Northrop Joint Venture Receives Safety Awards

Brown and Root-Northrop received two awards for safety performance in 1968. The two awards—one from the National Safety Council and one from the Texas Safety Association—recognized the completion of 2,207,191 man-hours of work without a lost time accident.

NASA Houston

Brown and Root-Northrop is a joint venture of Brown and Root and Northrop Corporation with operations at the Manned Spacecraft Center, Houston, Texas.

The National Safety Council presented the Award of Merit for its operations from October 1967 to December 1968 without a lost time accident during more than two million man-hours of work.

STRINGERS

(Continued from page 1)

Moving at five feet per minute, the stringers are cleaned, dried and electrostatically sprayed with a dye penetrant solution.

Farther along they are inspected under ultraviolet blacklight to detect cracks and scratches. After painting, the stringers move into a baking oven for 25 minutes at 175 degrees F.

H. N. Moseley, process engineer for the 747 stringer project, estimated that electrostatic finishing and testing are up to 75 per cent faster than conventional methods.

"We get 95 per cent 'effectivity' compared with 35 per cent with conventional methods," he said. He defined effectivity as a measure of efficiency, time, material, manpower and quality of production.

The stringer operation at Anaheim is under D. A. Niccoli.

The Texas Safety Association, in its 30th annual conference, recognized Brown and Root-Northrop for its outstanding achievements. The award was presented in recognition of a "zero accident frequency for the entire year of 1968."

E.B. Webb, Brown and Root, heads the BRN Safety Coordination department with Northrop's Chauncey Park as one of the Safety engineers. Northrop BRN activities are under the Electro-Mechanical Division's Support Operations department headed by William J. Oakes.



FIRST PRIZE on the recent Fresh Water Fishing Club trip to Big Bear Lake was won by Helen Holliday, wife of Ray Holliday, Electro-Mechanical Machine Shop, with this one-and-three-quarters pound rainbow trout. She made the catch with a Gold Phoebe lure. The Fresh Water Fishing Club makes one or two trips each month and welcomes all fishermen who would like to join them. Contact Commissioner Art Bowser, ext. 318, or Assistant Commissioner Woody Woodsmall, ext 1249 for details.



JEANETTE STRICKLAND, shown with her mother, Mary, was chosen as a Woman of Distinction for her service to Fullerton Junior College.

Service to College Brings Honors to Miss Strickland

Jeanette Strickland, daughter of Mary Strickland, electronics assembler, Electro-Mechanical Division, was among the students to be honored as Women of Distinction by the Associated Women Students at Fullerton Junior College for service to the college.

Jeanette was a graduate of Fullerton Union High School where she won first place in the District Business Day competition in 1967. She has also received the Kiwanis Award in typing and the Bank of America Achievement Award.

This year she was sophomore class president at the college, secretary of Phi Beta Lambda business club, and received the Top Secretarial Award.

At the Phi Beta Lambda convention this year, she was first in state competition in shorthand. Her top speed was 160 words per minute.

For her introduction to business class, Jeanette did a research report on Northrop Corporation, for which she received 142 points out of a possible 150.

NRC Radio Club Members Aid in Annual Amateur Radio Field Day

Three members of the Electro-Mechanical Division NRC Radio Club, WA6YNT, participated in the annual Field Day of the Amateur Radio Relay League of America. The field day is set up to prepare ham radio operators to maintain national communications in time of emergency and disaster, according to Julian Bloom, club commissioner.

Marty Gregor, K6YOR, Materials and Process Engineering, and Vaughn Peak, WB6KOQ, Ordnance department, participated with the Anaheim Amateur Radio Association on the Irvine Ranch

property from noon Saturday, June 28, to noon Sunday, June 29.

Eddie Freed, WA6JWH, was with the Citrus Belt Amateur Radio Club at the Rim of the World High School, Lake Arrowhead.

In another club activity, the NRC Radio Club participated with the Anaheim Savings and Loan Association which celebrated Amateur Radio week by providing individuals with the opportunity to contact friends and relatives anywhere in the world from July 1 to July 10.

Keiko—Junior Achievement Company Wins Top Honors in Competition

Keiko, the Electro-Mechanical Division counseled Junior Achievement Company, was chosen "A Top Achievement Company" in the Regional Company of the Year Contest held recently in San Francisco. Keiko previously won top honors in the Orange County and the district Junior Achievement judgments.

This means that Keiko will send its Tom Manoogian to the National Achievers Conference in August.

Electro-Mechanical Division advisors to the company were Bob Varner, management, D. L. Myers, operations, T. S. Maxwell, production, T. M. Sneed, sales, and R. W. Barry, finance.

The company was liquidated at a stockholders meeting held just before the end of the school year. Company president Tom Manoogian reported that Keiko started with sale of capital stock. Ninety-two shares were sold at a

par value of \$1. Profits from sales of a key chain and an automobile safety kit were sufficient to repay shareholders' investments with a 10 per cent dividend. In addition the company donated \$30 toward purchase of an adding machine for the Junior Achievement Center and paid a bonus to the achievers.

Guest speaker at the shareholders' meeting was Tom Quayle, vice president and manager, Anaheim department. Mr. Quayle's address recognized the Keiko Company's answer to the question, "How is the younger generation doing?" He commended the extraordinary effort put into the company and the successful results illustrated by the high individual honors and Keiko company honors that were awarded.

Mr. Quayle was one of the leaders in starting Junior Achievement in Orange County over ten years ago.

NRC Calendar

For information on NRC activities from July 16 to July 30, call Personnel Services, ext. 244, or contact the commissioner. All meetings are held in the NRC Clubhouse, 1834 Valencia, Fullerton, unless otherwise noted.

ART—Every Wednesday at 7:30. Model on alternate weeks, also still life. Bring paints or sketch pad. Non-professionals welcome. Ed Mosher, ext. 1184.

BASKETBALL—Inactive until October.

BIBLE—Mondays, Wednesdays, Fridays, 11 a.m. Conference Room, Y-1. Tuesdays, Thursdays, Y-41 Conference Room. Presently studying the Book of Job.

BOATING—Inactive.

BOWLING—Tuesdays at 6:30, Carter Bowl. Summer league finishing. Practice for winter league, signing up in September.

CAMERA—Meeting Tuesday, July 22. Instruction available for those wanting to learn to process black and white film. Time: 7:30 p.m.

COIN—Next meeting August 12, 7:30 p.m.

DESERT RATS—Inactive until cooler weather.

FISHING—DEEP SEA—Opening still available for August 2 and 3 Albacore fishing trip.

FISHING—FRESH WATER—Fishing trip set for San Juan Creek July 19. Stream, near Lake Elsinore, is well stocked with trout. Regular club meeting, July 21 at 7:30.

GEM AND MINERAL—Next meeting, August 4, but have work nights every Monday. Workshop and instruction available.

GOLF—Monthly tournament, San Juan Hills Country Club, July 20, 11 a.m. Green Fees, \$7.

GOLF—women—twilight league now on, Wednesdays at Brea Golf Course. Women are welcome to join with the men in their monthly tournaments.

GUN—Next meeting August 5.

POCKET BILLIARDS—Tournament now on, every Wednesday at 4 p.m., Big John's. New tournament starts September 10.

TRAILER & CAMPER—Weekend trip July 26-27 to Oak Springs Ranch, Hemet. Monthly meeting after potluck dinner on Saturday.

TRAVEL—Reservations still open for Southern Europe or British Isles tour, September 20 to October 11. \$695 per person.

WOMEN'S CLUB—No activity this week.

RADIO—Meets at radio shack every day at lunchtime. Presently contacting club members on vacation throughout the world.

SKI—No show because of no snow.

TABLE TENNIS—Daily at noontime, cafeteria area. Bring your own paddle.

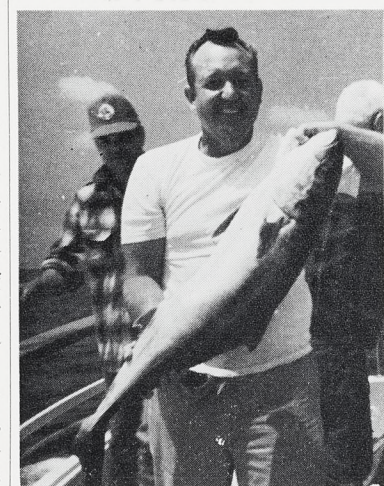
SOFTBALL—men—In-plant and industrial leagues in full swing.

SOFTBALL—women's—Industrial league going strong—need rooters.

MANAGEMENT CLUB

The Electro-Mechanical Division Management Club will hold its meetings in Anaheim following restructuring of the Nortronics Management Club in February 1970, according to C. P. Shelly, president.

The new club will meet at the Elk's Club in Anaheim.



H. M. WOODSMALL, supervisor, Manufacturing Liaison, displays the 20-pound yellowtail he caught during the recent NRC Deep Sea Fishing Club outing to Coronado Island. The group of 25 fishermen caught 29 yellowtail, plus plenty of bonito and Catalina blue perch, according to Commissioner Ed Robertson. The next trip, looking for albacore is set for August 2. Reservations are now being taken.

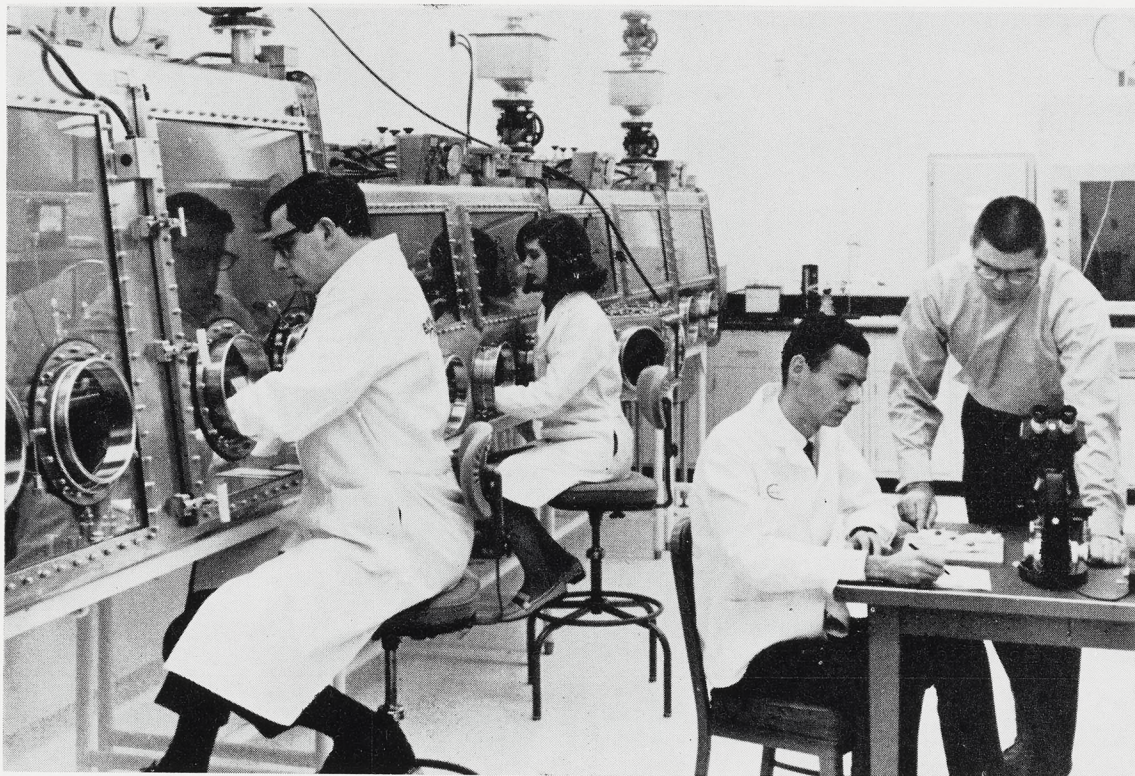
NORTHROP NEWS

ELECTRO-MECHANICAL DIVISION EDITION

Published biweekly by Northrop Corporation, Beverly Hills, California

Vol. 27, No. 14

July 30, 1969



MOON MATERIAL returned by the historic Apollo 11 lunar probe will undergo extensive analysis. Scientists and technicians of Brown and Root-Northrop, like those above, will support this program. Twenty-one botanical species will be exposed to moon material gathered by

the astronauts to detect presence of any toxic materials which might effect their growth patterns. BRN personnel are also serving the astronauts in the quarantined Lunar Receiving Laboratory.

Astronauts at Home in Lunar Receiving Lab

America's moon men are now at home in the Lunar Receiving Laboratory in Houston, Texas, where they are being served during their 21-day quarantine by personnel of Brown and Root-Northrop.

Brown and Root-Northrop is a joint venture of Brown and Root, Houston, and Northrop Corporation.

The three astronauts, Neil Armstrong, Edwin Aldrin and Michael Collins, were taken directly to the Lunar Receiving Laboratory after their splash-down in the Pacific on Thursday, July 24. Here they went into quarantine along with their BRN attendant technicians.

The receiving laboratory is enclosed within its own biological barrier, consisting of sealed building construction, filtration of supply and exhaust air, and sterilization of all solid and liquid wastes.

The Northrop portion of the BRN joint venture is under the cognizance of the Electro-Mechanical Division's Support Operations department, headed by William J. Oakes.

The 800-man Brown and Root-Northrop effort is under Harry Clagett, project manager and Joe Whitworth, deputy manager. Tom Slack is BRN's Lunar Receiving Lab manager. Quarantined with the astronauts are Mel Graham, Logistics and Operations officer, and technologists John Potter, Jerry Terrell, Hank Kippa and Charles Gill. They will be responsible for clinical chemistry, hematology, enzyme analysis and immunology programs.

(See **ASTRONAUTS**, page 6)

Mc Innis Named Director of Manufacturing

Don A. McInnis, director, Ordnance Manufacturing, has received additional assignment as director of all manufacturing for the Electro-Mechanical Division Anaheim department. The appointment was announced by Tom Quayle, vice president and manager, Anaheim department.

"Mr. McInnis' long and varied experience in Northrop establish him as highly qualified to assist in attaining the goals and objectives of the Anaheim department," Mr. Quayle said.

Organizations reporting to Mr. McInnis in his new position will be Manufacturing and Materiel Control sub-section, C. M. Hargrove, deputy director, Electronic Production and Support group,

(See **MC INNIS**, page 6)

Standardized Badge System Adopted for Division Use

A new standardized employee badge has been approved for use by all Northrop divisions. Present badges may continue to be used until necessary to replace, but eventually all units of the corporation will use the standardized badge.

The new badge is blue and white, featuring the name Northrop prominently with the division's designation in smaller letters at the top. The owner's photograph, name and man number are featured on the front. Clearances will be designated by "stars" instead of "dots." It has been simplified by eliminating the present signature and through use of a common return address for all divisions and subsidiaries.

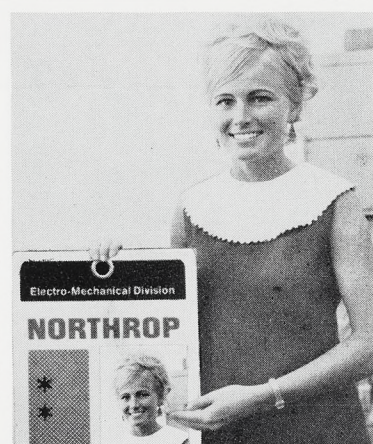
The Electro-Mechanical Division is expected to switch to the

new badge within the next few months, according to Gene Jessick, chief, Plant Protection and Security. Equipment and supplies for the change-over have been ordered. The change, when started, will be complete through the division. At Anaheim the change-over will be accomplished over a 44-day schedule.

Task Force

The Corporate Security Committee, chaired by Mr. Jessick, was given the assignment to design the new employee badge. The standardized design will permit an employee eventually to keep the same badge when transferring between divisions. Divisional name decals will be used to make these changes.

The new badges are expected to be issued about September 1, Mr. Jessick said.



DONNA FISH gives a preview of the way the new employee badge looks. Donna coordinates badge activities for Electro-Mechanical Division personnel.

Floyd Hummer, Louis Soucek Will End Northrop Careers August 1

Two veteran Electro-Mechanical Division personnel will retire on August 1. They are Floyd O. Hummer, inspector in Processing and Receiving, and Louis Soucek, maintenance electrician with Industrial Engineering.

Floyd came to work with Northrop 13 years and 10 months ago after wide experience in the automobile industry.

"The first thing that struck me about Northrop when I went to work here was that everybody called everybody by his first name. Through the years I've found this the friendliest place to work of any company I've ever

seen," he said.

Following his retirement, Floyd intends to keep up his hobby of working on his house and traveling. His travel plans include first a trip back to his original home in Indiana to see his mother. The following year, he and his wife will go to Scotland to visit her family.

Louis Soucek has more than 15 years with Northrop. He came to California from Virginia in 1936, having worked with Bethlehem Steel and other companies before joining Northrop in 1954. He has worked as a maintenance electrician.

After retirement, he said, "I'll do the usual things—hunt a little, fish a little, and do what comes naturally."

One of his hobbies is gem polishing and he expects to find time to do more of that.

"I've enjoyed my years with Northrop. I've been privileged to work with a fine group of people," he said.



Mr. Hummer

Mr. Soucek

HIDDEN DOLLARS

New Benefits Become Effective August 1

Improvements in Northrop fringe benefits, announced last November, will go into effect August 1 along with several new benefits not previously announced, according to Frank W. Lynch, vice president and general manager.

"The most important of these are basic hospital, surgical and medical insurance plus major medical insurance coverage for your eligible dependents without cost to you," Mr. Lynch said. "This results in a savings of \$1.18 to those who currently insure dependents under this program. The change will be reflected in the paycheck you receive on August 8."

The following improvements become effective on August 1:

- **Hospital Benefits** — The maximum daily hospital room and board allowance will be increased from \$45 to \$48, and any charge for a semi-private room above \$45 a day will be eligible for consideration under the major medical coverage.

- **Surgical Benefits** — Allowances for surgical expenses will be increased about 10 per cent.

- **Survivor's Insurance** — The minimum monthly payment for Survivor's Income Benefit Plan will be raised from \$100 to \$160 per month. This benefit applies

to survivors of employees less than age 65 who are actively at work on August 1, and whose death occurs thereafter.

- **Additional Vacation** — An employee with at least 20 years seniority whose vacation anniversary date occurs on or after August 1, 1969, will now be eligible for an annual paid vacation of 160 hours (20 working days). The one-time-only bonus vacation of 80 hours after 20 years seniority will be discontinued. Employees who have earned, but not taken, the bonus vacation by August 1

(See **BENEFITS**, page 2)

NORTHROP NEWSMAKERS

Billie Linebarier, former Venturan and wife of Ventura's **Harvey Linebarier**, is the newly elected president of the Los Robles Chapter of the National Secretaries Association. Outgoing president is former Venturan **Tammy Tracy**.

Walker Bennett, Electro-Mechanical-Huntsville, Alabama, is one of 28 executives taking part in the 16th annual summer executive program in the University of Southern California Graduate School of Business Administration.

C. H. Fuller and **D. L. Dyer**, Northrop Corporate Laboratories, have co-authored a paper titled "Noise Rejection in Scanning Counting Systems" for publication in the Review of Scientific Instruments.

W. W. Harter, Aircraft Division, was a participant in a three-member panel discussing

"Reliability Data Feedback to Military Contractors" at the 8th Annual Conference on Reliability and Maintainability.

C. F. Pulvari and **J. R. Srou**, Northrop Corporate Laboratories, have co-authored a paper titled "A New Graded Electrode for Forming Intimate Contact With Ferroelectrics" for publication in the IEEE Transaction on Electron Devices.

H. W. (Bill) Jones, Aircraft Division, was a panelist at the recent meeting of the Los Angeles Chapter, American Society of Information Science, discussing the topic "Selective Dissemination of Information Programs."

Max Fayrweather, Aircraft Division, was the featured speaker at the July 12 meeting of the Hawthorne Rotary Club. Mr. Fayrweather discussed Northrop's progress on the Boeing 747 Program.



DR. D. A. HICKS, right, vice president and manager, Northrop Corporate Laboratories, talks with members of the American Society for Testing and Materials Committee on Research meeting at NCL. They are from left, **J. D. McClelland**, **H. V. Stewart**, **F. H. Winslow**, **W. F. Hulse**, **Dr. Emanuel Horowitz** and **R. B. Smith**.

Fringe Benefits to Reach New Highs

(Continued from page 1)

will still be eligible to take it anytime before their 25th year of seniority.

Personnel with 20 years or more of seniority prior to August 1, 1965 will have until July 31, 1970 to take their bonus vacation.

There will also be changes in the retiree insurance programs. These include:

- **Early Retirees** — Current retirees under 65 or current employees who retire from active service and are under 65 may elect coverage at nominal cost under a health insurance plan similar to that provided active employees. It may also be purchased at nominal cost for under age 65 eligible dependents of retirees.

- **Normal Retirees** — This plan applies to all individuals whether active employees, retirees, or spouses who are age 65 or older. Medicare provides hospitalization coverage and Plan B of Medicare covers doctors' services. This Northrop plan supplements the Medicare coverage to provide a combination of coverages comparable to that provided active employees under 65. The plan is provided without cost to current retirees over 65 and

to employees who retire from active service after reaching 65. The retiree may purchase the same insurance plan for an over 65 spouse at a very nominal cost.

There will also be a pension adjustment. The pension plan benefit formula, applicable to employees who retired from active service prior to August 1, 1968, will be improved with a \$1 per month increase for each year of service, before reduction for early retirement or for selecting a joint annuitant.

Something New

A \$1,000 company-paid death benefit will also be provided for all employees who retired from active service with the company and who were not provided this benefit at the time of retirement. Previously, those who retired at 65 or older had this benefit. It is now extended to all who retire after August 1, 1969.

In addition to these previously announced improvements, the following have also been added:

- **Convalescent Nursing Home Benefits** — This will help pay for a convalescent nursing home confinement after a hospital stay of at least five consecutive days that was covered by the plan. The confinement must

start within seven days after release from the hospital and be recommended by your doctor for the condition causing the hospitalization.

- **Dependent Children** — Dependent basic and major medical coverage has been extended to cover unmarried children who attain age 19 and are physically or mentally incapable of self support and are dependent upon the insured employee.

- **Retirement Option** — A 10-year certain and continuous survivorship option has been added to our Retirement Plan. This option, available to all who retire after August 1, provides that if the retiree should die within 10 years of his retirement, his pension will be paid for the remainder of the 10-year period to a person named by him. If he lives beyond 10 years, payments will continue to be made to him for the rest of his life, but no payments will be made to anyone else upon his death.

**IS IT NEWS?
CALL EXT. 4273
HAWTHORNE**

FOR HELPING JOBLESS

Venice Community Honors Larry Walton

Larry Walton, director of Northrop's Venice Training JOB Center, was honored for "Outstanding Service to Residents of the Venice Community" by the Venice Community Improvement Union.

A plaque, expressing the union's appreciation, was presented to Mr. Walton.

The Training Center has been training hardcore unemployables in cooperation with the National Alliance of Businessmen. Workers trained under the program are employed in aircraft assembly at the Northrop Aircraft Division. Northrop has employed a total of 214 men under the program.

Recruits were given basic education and job training under Mr. Walton. After a prevocational phase of 10 weeks or less in Venice, the trainees passing the necessary tests have been transferred to the Aircraft Division Hawthorne facility as permanent employees.

Mr. Walton said that 85 per cent of the trainees succeeded in

becoming eligible for the transfer, and 73 per cent are still on the job. Others have found regular employment elsewhere. He added

that Venice hardcore trainees were turning out as good or better than those hired through regular employment channels.



NORTHROP'S LARRY WALTON, second from right, director of the company's Venice Training Center, accepts plaque of appreciation from officers of the Venice Community Improvement Union. (Photo courtesy Santa Monica Evening Outlook.)

Corporate Labs Host Meet Of ASTM Research Group

Dr. D. A. Hicks, vice president—Corporate Research and manager, Northrop Corporate Laboratories, was host recently for a meeting of the American Society for Testing and Materials Standing Committee on Research at the NCL facility, Hawthorne.

This committee is composed of well-known leaders in their respective fields. It has the broad objectives of considering means to advance the work of the ASTM Society in promoting knowledge of engineering materials; bringing about studies of those properties and materials on which in-

formation is needed; and reviewing annually the progress of the ASTM research activities.

Taking Part

Attending were: **J. D. McClelland**, Aerospace Corporation; **H. V. Stewart**, Century Geophysical Corporation; **F. H. Winslow**, Bell Telephone Laboratories, Inc.; **William F. Hulse**, secretary, ASTM; **Dr. Emanuel Horowitz**, National Bureau of Standards; and **Raymond B. Smith**, Reynolds Aluminum Company.

Members of the committee not attending were: **H. Conrad**, the University of Kentucky; **G. C. Deutsch**, NASA-OART; and **L. R. McCreight**, General Electric Company.

SQUARE JETS

The NRC Square Jets have announced that beginner's classes will begin September 28, 7:30 to 9:30 p.m., at the Lennox Women's Club, west of Hawthorne Boulevard.

Instruction will be provided by **Dan Schmeltzer** and his wife, **Bernice**. Cost of the course is a \$1.25 donation to the club.

JOB Center Hosts Visit By Employees

By special request of McDonnell Douglas Corporation officials, the Northrop JOB Center at Venice played host to a group of 26 summer employees and their leaders July 9.

The summer employees of McDonnell Douglas are all recent high school graduates or second-year college students to be. They are working in a special program to acquaint them with industry which includes tours and talks on special subjects.

Warner Smith, McDonnell Douglas education administrator, arranged the tour with **L.H. Walton**, program director for the Northrop JOB Center.

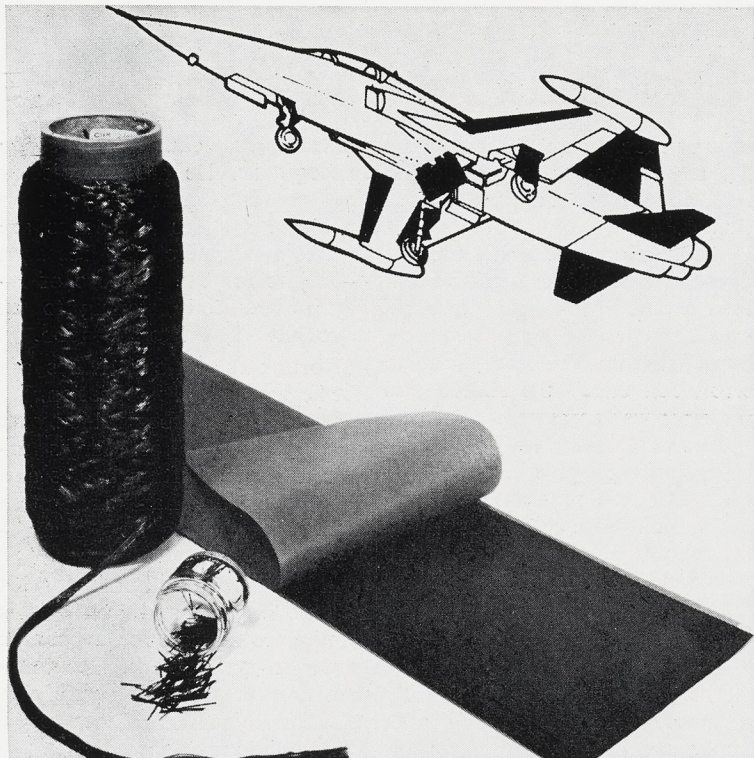
The center, opened in September 1968, recruits and trains people under a program of the National Alliance of Businessmen. It is operated under contract to the U.S. Department of Labor.

FISHING CLUB

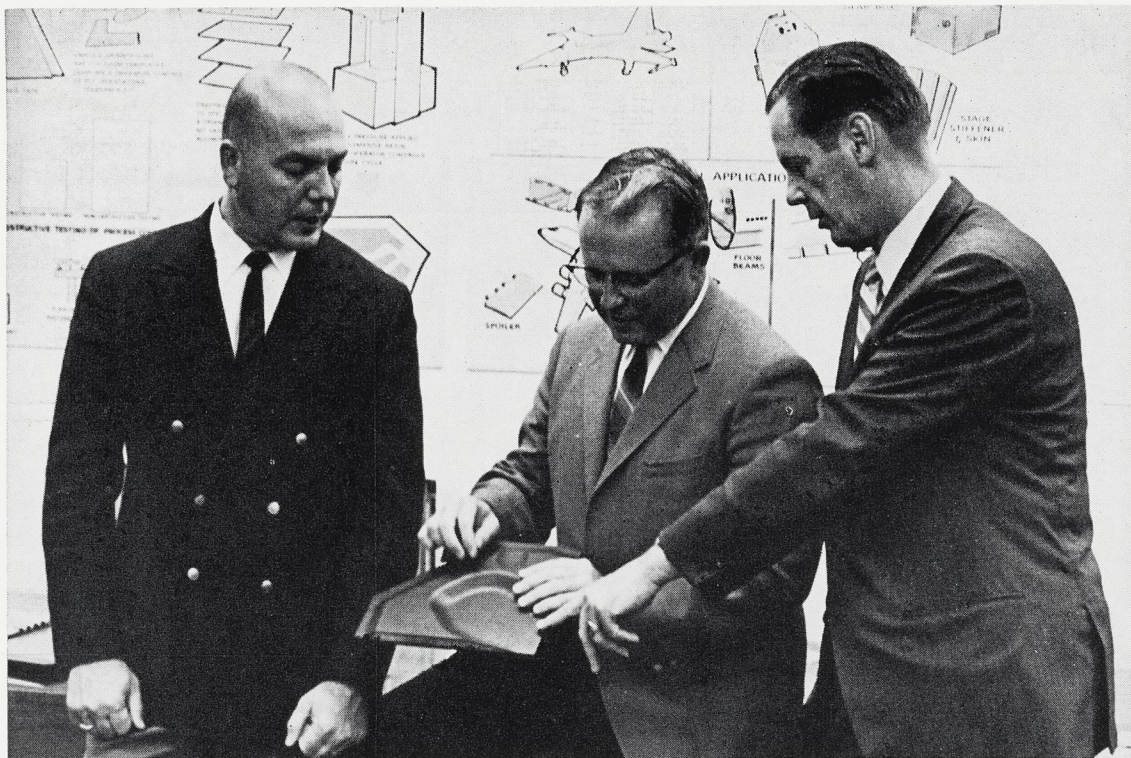
NRC Surf Fishing Club members will gather at the NRC Clubhouse at 7:30 p.m., August 5, to view movies of **Phil Fetcho's** recent fishing trip.



DISCUSSING activities at the Northrop JOB Center in Venice with visiting summer hire students from McDonnell Douglas Corporation is Northrop's **Larry Walton**.



AIRCRAFT FROM YARN—Spool of graphite yarn, a strip of graphite-epoxy tape, and a jar of chopped graphite filament are raw materials to be used in composite to make shaded component areas of F-5, above.



CLOSER LOOK—George P. Peterson, chief of the Air Force Materials Laboratory, left, and Dr. Alan M. Lovelace, lab director, discuss

graphite composite section with Northrop's Robert D. Hayes, right, following recent press briefing at the Aircraft Division.

NORTHROP A U.S. LEADER

AF Officials Tell Role of Composites

Northrop is a U.S. leader — and the U.S. is pre-eminent internationally — in the development of advanced lightweight composite materials for use in aircraft production.

And there are no major, insoluble problems in making composites an important factor in the list of aircraft structural materials in the near future.

Dr. Alan M. Lovelace, director of the Air Force Materials Laboratory, Wright-Patterson Air Force Base, Ohio, and George P. Peterson, chief of the lab's Advanced Composites Division, made these remarks at a Northrop sponsored press briefing for editorial representatives of semi-technical publications.

The Air Force visitors were introduced by Roy P. Jackson, Aircraft Division vice president and assistant general manager. Mr. Jackson noted the significance of composites and the challenge of their incorporation into aircraft design and production.

Teamwork

"Northrop is actively pursuing knowledge" in the field and working closely with the Air Force in the "exciting developments" of the evolution of structural materials, Mr. Jackson said.

LEADERS PICKED FOR STATION BID

Theodore D. Smith has been named by McDonnell Douglas Corporation to head his firm's manned space station program proposal to NASA.

Northrop Ventura is one of eight subsystem subcontractors in the proposal. Heading the Ventura team are Theo Knacke and Harold Bixby, in Engineering.

Ventura will provide expertise in the steerable parachute landing system for a logistics spacecraft which would ferry men and equipment between earth and the space station.

Mr. Knacke has been a key figure in deceleration since 1935. A Northrop employee since 1962, he has been a technical consultant on research, development, and engineering testing, of landing systems for most U.S. manned landings, satellite and missile recovery systems, air retrieval systems and advanced landing systems.

"The Air Force," Dr. Lovelace said, "has launched into a major graphite (composite) development program with Northrop." Graphite composite is about 40 per cent lighter than aluminum and yet as strong as metals now being used in aircraft production.

The Air Force Materials Laboratory, responsible for U.S. composites development and application in aircraft, has engaged in a \$3.4 million three-year program with Northrop to head a team in designing and producing a variety of major aircraft structures described by Northrop's Robert D. Hayes, manager, Graphite Reinforced Structures Program.

Advantages

Mr. Hayes said the structures are the main landing gear door, speed brakes, leading edge flap and horizontal and vertical stabilizers. All are assemblies interchangeable with existing material assemblies on the F-5 tactical fighter and will be ground tested to demonstrate their flightworthiness.

With their improved strength to weight ratios, advanced composites provide an ultimate system cost savings through increased aircraft payload, speed and range. Graphite composite's ability to be formed, shaped and machined has been demonstrated by Northrop and is one of the principal advantages of this material over the

other advanced composite materials.

Northrop was the first company to design and test fly a structural aircraft part made of graphite.

The future of graphite, all participants agreed, is very bright. Dr. Lovelace said the Air Force anticipates "greatly shortened schedules and reduced costs" in development and demonstration of graphite composites because of what was learned about boron.

"In the long run," Mr. Peterson added, "composite assembly fabrication cost and reliability will be a major advantage for composites over metals."

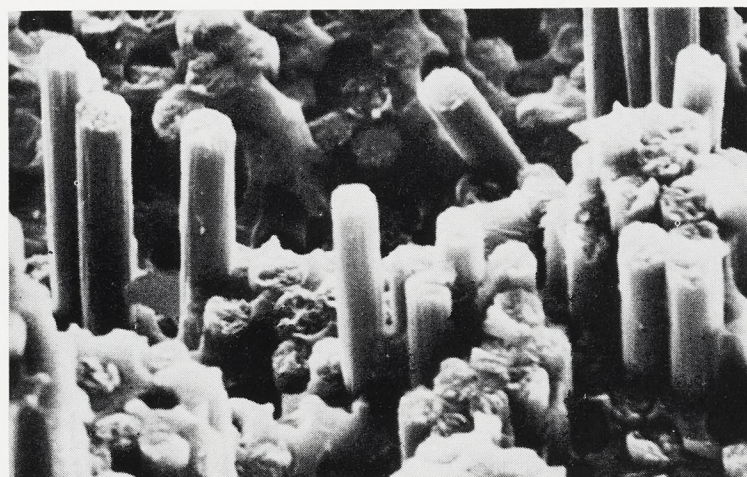
Also becoming increasingly involved in composites are the Northrop Corporate Laboratories and the Ventura Division.

Results

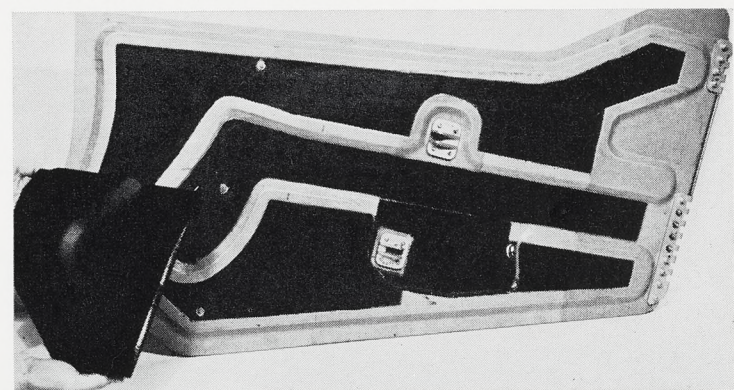
Polyimide-boron and polyimide-graphite research and development at NCL have resulted in superior quality composites of high heat resistance and shear strength.

Ventura recently installed facilities for fabrication of prototype structures for market testing. The scaled-up processes will utilize the NCL-developed boron-polyimide composites.

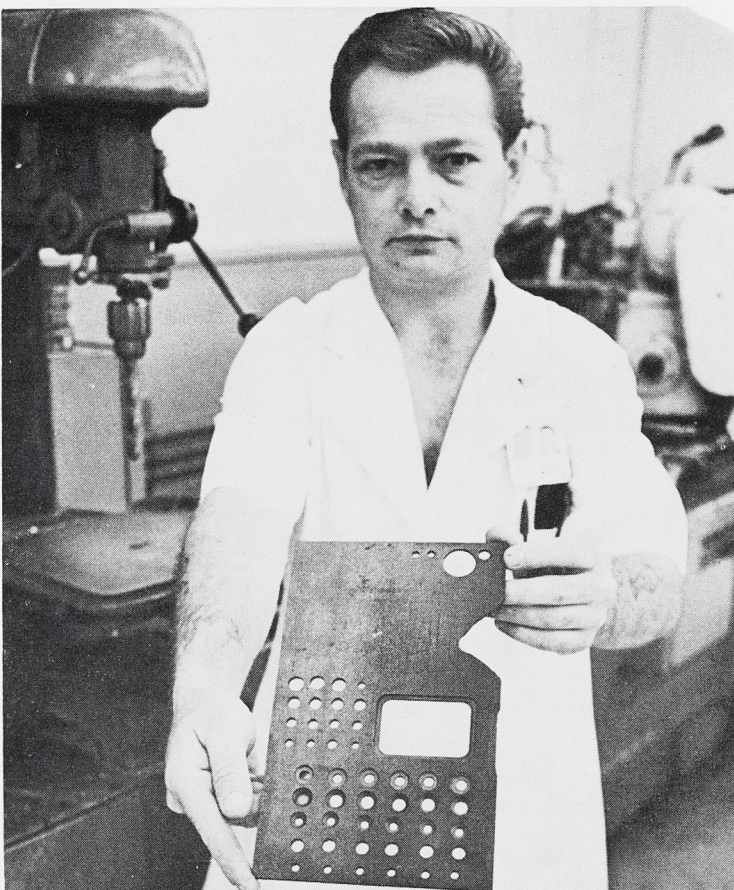
The press briefing followed an Air Force sponsored Graphite Composite Technology Review conference.



LEADING IN FIELD—Above, internal structure of graphite composite cross-section is enlarged 1,000 times. Graphite fibers, exceptionally strong, are only one-fourth diameter of a human hair. Below, Northrop-produced experimental graphite composite section, lower left, is a boron composite F-5 landing gear door.



MORE DETAILS — Lad Kuzela, West Coast editor of Steel Magazine, gets more information on composites from Northrop's Robert D. Hayes following press briefing.



EASY TO MACHINE—Northrop Machinist Jim Sauer displays sheet of heavily machined graphite composite material.

WHAT DO YOU THINK?

Given a Choice, What Period in History Would You Prefer Living



Mrs. Ziegler

Kathy Ziegler, secretary, Ventura:

Now. Things are happening. This is a challenging generation to live in. I'm raising five teenagers and they are all bewildered. It's not a 'yes or no' world anymore.

Peter Dostal, lathe machinist, Electro-Mechanical:

What's wrong with right now? I don't think things are as bad as some people like to think.



Mr. Dostal



Mrs. Click

Lillian Click, custodian, Electronics:

I'm satisfied in this time period. We have better times now and I'm perfectly happy living and doing what I am in today's world.

Harry Hollerman, executive advisor to the controller, Aircraft:

The renaissance period. They were on the verge of scientific discovery, but had only parts of the total puzzle of science as we view it today. What I'd like to do is translate the technology of today to that period of time.



Mr. Hollerman



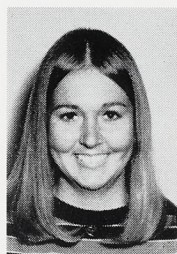
Mr. Covington

Jim Covington, plastics bonder senior, Ventura:

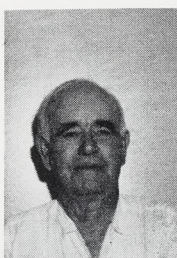
The present. We're at the start of going beyond the world and its future. Everything—in all areas—is having its greatest start right now.

Judy Sims, Procurement Coordination, Electro-Mechanical:

I think I'd like the time of hoop skirts and frilly dresses. Maybe some place like New Orleans with those stately mansions and horses and carriages.



Miss Sims



Mr. Clancy

George E. Clancy, engineering technical assistant, Electronics:

The Roaring 20's. Everything was good then, and they didn't have most of the troubles we have today. Those were the days when people didn't have a worry in the world.



Miss Bourke

Lynda Bourke, secretary, Aircraft:

I'd rather stay here. The past has nothing that appeals to me. I feel an individual has more opportunity for advancement today than in any other period of history.

AIRCRAFT DESIGN AWARD PRESENTATION

The Northrop-sponsored Aircraft Design Award of the American Institute of Aeronautics and Astronautics for 1968-69 has been presented to an engineer whose work in electrical and hydraulic systems has helped make aircraft safer.

He is Harold W. Adams, deputy to the vice president-chief engineer of the Douglas Aircraft Company, McDonnell Douglas.

CATCHES TV ERROR

Jon Oliver Is Space Expert at Fourteen

Jon Mark Oliver, son of John Oliver, Corporate Product Licensing, is a space expert at fourteen.

His collection of space oriented material includes motion picture film, slides, wall charts, photographs, models, records, books, souvenirs, stamps, tape recordings of actual launches and interviews, newspaper clipping scrapbooks, magazines, and even a photograph of himself getting autographs from two astronauts.

Jon's space collection began four years ago when he clipped an article about the Ranger spacecraft used for the NASA

moon probe. From this beginning he added everything he could find about space and space activities.

His studies have made the 14-year-old space enthusiast a genuine expert in the field. On a recent broadcast of a space launch, he caught the TV reporter in an error. Jon called the station and the error was corrected.

Another time he used his scrapbooks to give a report to the sixth and seventh grades at his school. He also was asked by his school principal to help make a test on aerospace subjects for the eighth and ninth grades. He is only in the eighth grade himself.

His room at home is literally a space museum, jammed with books and models with the walls

loaded with charts and space photographs. He has a projector and recorder permanently set up so that his slides and tapes are instantly available, for research—or just for the pleasure of lying in bed and listening to an astronaut take off to the moon.

Northrop's space activities are not neglected in his collection. He has one complete book filled with clippings on the company's experiments with lifting bodies and another on the Landing System used for returning Apollo astronauts to earth.

Partly his collection is for his current interest and partly it is to prepare himself for a possible career in space work. His ambition now is to work possibly as a flight dynamics officer or a space public relations officer.

Three AF Cadets Spending Summer Working at NCL

Three Air Force Academy cadets, Lieutenant Richard Abbott, Cadet First Class Brian Lopert and Cadet First Class Michael Lyons, are working with Northrop Corporate Laboratories during their summer vacation.

The cadets are at Northrop under a program through which Academy students specializing in science and engineering fields join industrial companies, government agencies or military laboratories during the summer to receive firsthand experience in basic and applied research methods.

Lieutenant Abbott, who graduated from the Academy in June, is working with Dr. A. J. Mendez on laser experiments and setting up experiments in holography. This is the second year Lieutenant Abbott has participated in the program. The first year he was assigned to a NASA Electronics Research Laboratory at Cambridge, Massachusetts.

Cadets Lopert and Lyons are working in the Continuum Mechanics Laboratory with Dr. William Griffin. Their work is testing practical results against computer-developed theory on a "heat pipe" program dealing with thermal conductivity. It can be used for transferring heat in electronic equipment and other systems.



JON MARK OLIVER, son of Northrop's John Oliver, has become an expert on space exploration at the age of 14. He shows off a portion of the many space-related items in his bedroom.

Bride Bags Big Sailfish On Honeymoon in Mexico

Linda Skinner's honeymoon trip to Mazatlan, Mexico, brought her two additional unexpected wedding presents: an 82-pound sailfish all her own and half of the largest blue marlin caught in

Baja California to date this year.

Linda was the first to catch a fish, snagging the 82-pound sailfish that took her 15 minutes to reel in. The largest previous catch she ever made was a six-pound corbina.

Later in the afternoon her husband, Glenn, hooked a 403-pound blue marlin that was 12 feet, 5 inches long. It was landed after a two-hour battle, ranging over a wide area in the Gulf of California.

They brought back the nose of Linda's sailfish and are having the marlin stuffed. "I don't know how he will fit into our mobile home," Linda said, "but we're keeping him regardless."

ENROLLMENT OPEN FOR SAVINGS PLANS

Eligible Northrop personnel may enroll in the Savings Plan and change deduction amounts and options covering contributions to the bond and stock funds beginning August 4.

The three investment options available to participants are 100 per cent in the bond fund; 50 per cent in the bond fund and 50 per cent in the stock fund; or 100 per cent in the stock fund.

Application cards for changes may be obtained from Industrial Relations offices and should be returned by August 1.



LINDA AND GLENN SKINNER with their honeymoon catch. The blue marlin is the largest caught at Mazatlan, Baja California, this year.

Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

Dodge, 1964 Dart, model 270, r/h, big 6, \$945. 213-421-7029. A

Chevrolet, 1957 convt., Bel Air, V-8, auto., p/s, p/b, r/h, \$250. 213-823-3418. A

Chevrolet, Bel Air, 1962, auto. trans., radio, \$450. 213-277-0594. A

Chevrolet, 1967 SS 327, air, mags, \$1,800. 213-633-7138. A

Pickup, 1959 Ford, V-8, \$600. 213-223-9583. A

T-Bird, 1965, full power, \$1,700. 213-542-2863. A

Volkswagen, 1965, 5 new tires, rear spkrs., \$1,065. 213-372-4676. A

Datsun, 1968 510, 4-dr. sedan, \$1,625. 213-882-0761. A

Porsche, 1958 coupe, rebilt. 1600 cc eng. & trans., \$1,400. 213-679-4063. A

Buick, 1963 Special, 2-dr., auto. trans., r/h, \$550. 714-826-1652. A

Volkswagen, 1967 fastback, AM-FM, extras, \$1,550. 213-323-8089. A

El Camino, 1960, 350 cu. in., 4 spd., \$1,200. 213-327-0447. A

Falcon, 1961, rebilt eng., r/h, 2-dr., \$295. 213-373-3128. A

Pontiac, 1968 LeMans, V-8, auto. trans., p/s, p/b, a/c, AM-FM radio, w/in warranty period, \$2,845. 213-378-0485. A

Buick, 1956 Special, chrome rims, p/s, p/b, \$275. 213-324-2972. A

Chevrolet, 1963, 327 eng., fact. air, 2-dr., \$550. 213-645-6211. A

Station Wagon, 1965 Fairlane 500, V-8, o/drive, fact. a/c, p/s, \$1,250. 213-323-1079. A

Volkswagen, 1962, rebilt eng., r/h, \$825. 213-376-3870. A

Fiat, 1962 1100, 4-dr., \$290. 714-527-7804. A

Volvo, 1958, 2 new tires, \$300. 213-371-7830. A

Station Wagon, 1959 Chev. Parkwood, w/carry rack, \$200. 213-328-2954. A

Pontiac, 1968 Le Mans, p/s, p/b, 9,000 miles, \$2,650. 213-679-6749. A

Chevrolet, 1956, V-8, 265 power-packed rebilt. eng., 4-bbl. carb, recently o/hauled front end, \$300. Box 1401. A

Cadillac, 1965, convt., full power, fact. a/c, AM-FM radio, \$2,650. 213-697-4258. A

Plymouth, 1969 Roadrunner, 4,600 mi., \$3,200. 213-672-0279. A

TR4A, 1967 convt., wire whls., radio, \$1,825. 213-838-5186. A

Dodge, 1966 Monaco 500, full power, a/c, console shift, \$1,495. 213-376-9875. A

Pontiac, 1964 Grand Prix, r/h, \$1,095. 805-495-2339. A

Mustang, 1966, full power, h/top, auto. trans., 289 V-8, \$1,500. 714-545-0101. A

Ford, 1959 4-dr., stick shift, Monro shocks, 292 cu. in. eng., \$300. 213-324-9076. A

Station Wagon, 1962 Ford, 352 V-8, fact. air, p/w, radio, auto. trans., \$900. Box 1402. A

Lotus, 1966 Elan rdstr., \$2,650. 213-677-5170. A

Cougar, 1967, p/s, p/disc brakes, a/c, 12,500 miles, \$2,495. 213-678-8467. A

Corvette, 1967 Fastback 427, auto. trans., p/s, AM-FM, \$3,500. 213-675-1706. A

Oldsmobile, 1965 Starfire, air, all elec., extras, stereo, \$1,795. 213-248-9274. A

Mustang, 1966, 6-cyl., auto. trans., \$1,495. 805-495-3889. A

Pickup, 1939 Chev., 1/2-ton, \$250. 213-679-6602. A

Volkswagen, 1967, mag whls., '68 b/seats, Goodyear wide GT tires on rear, stereo 8-track tape & AM radio, 4 spkrs., other extras, \$1,850. 714-827-6790. A

Chevrolet, 1955, 2-dr., 4-spd. trans., Indys, chrome whls., vibrasonic, \$450. 213-676-9798. A

Toyota, 4-dr., r/h, air, \$1,400. 213-326-1631. A

Chevrolet, 1956, 4-dr., stick shift, stereo, mag. wheels, htr., \$275. 213-534-1696. A

Ranch Wagon, 1958 Ford, needs some work, \$50. 714-837-8963. A

Station Wagon, 1963 Buick Invicta, p/s, p/b, air, \$625. 213-692-8521. A

Pontiac, 1968 Executive, 4-dr. h/top, a/c, p/s, p/b, factory warr., \$3,050. 213-547-4930. A

Corvette, 1967, 427 eng., many extras, \$3,200. 213-363-3843. A

Dune Buggy, VW, fiberglass, \$745. 213-370-2876. A

MGB-GT, 1967, r/h, 17,000 miles, \$2,850. 213-329-6453. A

Mustang, 1966, V-8, p/s, r/h, \$1,750. 213-542-2954. A

Household Items For Sale

Tables, 2 limed oak step end, matching coffee table w/Valspar tops, modern, \$20. 213-675-9530. B

Cedar Chest, Lane, walnut w/black leather uphol. top, \$70. 213-644-8543. B

Reclining Chair, white Naugahyde, 3-position, \$20. 213-373-1902. B

Sewing Machine, Kenmore, all attachments, \$35. 213-372-8714. B

Headboard, twin, metal frame, walnut wood in Italian provincial, \$20. 213-534-0280. B

Bedroom Suite, white, dble. bed & chest-of-drawers, \$50. 213-675-7732. B

Sofa-Bed, Riviera, queen size, brown & orange tweed, matching chair, \$350. 213-329-9125. B

Refrigerator, Hotpoint, \$100. 805-498-4353. B

Chairs, 2 Danish, \$10 ea. 213-374-5133. B

Living Room Set, orig. paintings & drawings, other miscellaneous pieces, \$1,500. 213-672-1968. B

Coffee Table, mahogany w/leather top, \$29. 213-427-8734. B

Rug, black bear skin, 62" x 69" extended, \$250. 213-345-3634. B

Crib, mattress & bumper, \$20. 714-968-5343. B

Crib, natural wood w/mattress & bathinet, \$25. 213-327-2939. B

Chest-of-Drawers, 5 drwrs., solid walnut, formica top, \$50. 213-644-8889. B

Miscellaneous For Sale

Typewriter, Olivetti, Underwood Lettera 32, & table, \$50. 213-542-2400. C

Recorder, Akai M-7, stereo, 10 reels of 7" 3M tape, other access., \$130. 714-534-2277. C

Exerciser, Posture-Rest, 3-pc. elec., \$25. 213-679-7873. C

Boat Trailer, small 2-wheel, \$25. 213-675-4156. C

Desk, office-type, 3 drwrs., typewriter compartment, \$15. 213-670-4702. C

Bicycle, 24", Higgins, girls', \$15. 213-675-3431. C

Acreage, 2 1/2 acres, Antelope Valley, \$35 dn., \$35 mo., no int., \$3,450. 213-378-1026. C

Camping Trailer, 13', sleeps 4, extras, \$750. 213-830-5284. C

Tape Recorder, FM, & record player, in custom-blt. console w/2 coax spkrs., \$225. 213-633-3993. C

Motorcycle, Matchless, 250 cc, \$250. 213-371-0860. C

Engine, 1960 rebilt. VW, \$495. 714-548-2907. C

Saw, BV1 saber-jig, \$12. 213-542-4937. C

House, 3-bdrm., h/wood floor, newly carpeted, 140'x50' lot, So. Torrance, can assume loan, \$24,000. 213-326-8668. C

Acreage, 20 acres, in Calico, low down pymt., \$85 acre. 213-644-2375. C

Motorcycle, Honda mini-trail, no lights, \$170. 213-834-0309. C

Acreage, Lake Isabella, 2 1/2 acres on Erskine Creek, Kernvale, \$9,000. 805-495-3850. C

Pup, AKC reg., beagle, \$50. 213-675-3931. C

Pool Table, slate, 1 yr. old, new cloth, 3 1/2'x7', \$425. 213-679-7145. C

Motorcycle, 1964 Cotton, 250 cc, \$350. 213-830-4434. C

TV, RCA color, 24" console, Mediterranean style, 5 mos. old, \$550. 213-325-1075. C

House, 3-bdrm., service porch, patio, water softener, new cpts., dps., Torrance, \$26,500. 213-370-5181. C

Boat, 16' cracker box, trailer, Chev. V-8, \$1,000. 213-358-0982. C

Motorcycle, Butalco Campera, 175 cc, \$525. 213-347-1298. C

Motorcycle, 1966 Triumph Bonneville, t.t. racer, partially disassembled, \$300. 213-423-5956. C

Motorcycle, 1966 305 Honda, 2 sets of tires, \$350. 213-328-2048. C

TV, 23" b&w Westinghouse, \$100. 213-372-5479. C

Table Tennis set, complete, paddles, balls & net, \$15. 213-679-5364. C

Pups, shetland, AKC reg., \$75 up. 213-370-2722. C

Pool Table, 4x8, honeycomb, indr.-o/dr., \$185. 213-534-1028. C

Record Player, 4-spd. stereo, Silvertone, \$10. 213-676-6661. C

Sailboat, 12', all extras, \$225. 213-325-4094. C

Vacuum Cleaner, G.E. tank-type, w/attachments, \$15. 213-833-5594. C

Camping Trailer, 1966 15' Aristocrat Lo-Liner, self-contained, E-Z Lift hitch, \$1,250. 213-644-5449. C

Bicycle, 15-spd. Schwinn Superior, \$60. 213-631-6480. C

Camper, Fleetair for 3/4-ton pickup, w/stove, ice box & cabinets, \$625. 213-327-9044. C

Home, 3-bdrm., 1 1/4 baths, cpts., dps., oak floors, block fenced yard, sprinklers, Hawthorne, \$24,500. 213-755-7695. C

Acreage, 2 1/2 acres w/cabin, Twenty-nine Palms area, terms, \$2,500. 213-370-9384. C

Clothes, children's & baby, 25¢ & up. 213-376-4831. C

Drafting Machine, Bruning, \$75. 213-379-0375. C

Tape Deck, Concord 501, 3-spd., stereo, \$75. 213-921-3394. C

House, 3-bdrm., 2 baths, fam. rm., Palos Verdes, many extras, \$42,900. 213-377-4317. C

Top, cloth & tonneau cover for 1967 Datsun Model 1600, \$25. 213-676-6390. C

Golf Clubs, 9 irons, 3 woods, \$15. 213-430-B2619. C

Miscellaneous For Sale

Surfboard, 9'6" Gordie, \$40. 213-542-4604. C

Piano, Ivers & Pond console, walnut finish, still under warranty, \$595. 213-755-1071. C

Acreage 1/4 acre, Lake Havasu City, Ariz., view, \$6,500. 213-645-5158. C

Golf Bag, cart, balls, set of irons, & woods, other extras, \$65. 213-532-4757. C

Piano, upright, recently recond. & antique finished, \$200. 213-696-7529. C

Mini Bike, 3 h.p. Briggs & Stratton eng., 10 mos. old, \$110. 213-377-4623. C

Motorcycle, 1966 Honda, 160 cc Scrambler, \$295. 213-677-6348. C

Surfboard, 7'10" Gregg Knoll Mini-Gun, \$55. 213-534-1231. C

Transceiver, Swan 400 W. 5-band, incl. power supply, VFO & microphone, \$335. 213-645-1274. C

Tools, precision, incl. depth mics, gages, other tools & Kennedy tool box, \$185. 213-371-4765. C

Trailer, 17' 1964 Travel Eze, fully self-contained, many extras, \$2,000. 213-695-2537. C

Bar, portable, 4' long w/storage shelves & 1/4" glass top, \$10. 714-531-4958. C

Motorcycle, 1966 Yamaha, 305 cc, lug. rack & bags, \$375. 213-675-1354. C

House, 3-bdrm., 1 1/4 baths, f/place, cpts., dps., 1 mile from Hawthorne facility, assumable 4 1/2% loan, \$23,950. 213-321-1655. C

Clarinet, Selmer, \$50. 213-838-6747. C

Watchmaking Tools, lathe w/sliderest, faceplate, universal chuck, staking set w/friction jewel attach., many small tools, \$415. 213-475-2741. C

Air Conditioner, for auto, Riverside Deluxe, used 1 yr., \$100. 213-928-2257. C

TV, Packard Bell, b&w, French prov. cabinet, \$75. 213-923-0140. C

Motorcycle, Bultaco, 1967 Matador, 250 cc, \$495. 213-751-8420. C

Hearing Aid, complete, \$25. 213-324-0274. C

Wristwatch, Lecoultre made by Longines, auto. master mariner men's, self-winding, shock & waterproof, gold-filled, \$40. 213-295-0778. C

Duplex, 2-bdrm., new cpts., disp., fenced backyd., det. gars., pvt. parking area, 3 mi. from main plant, G.I. possible or financing, \$28,500. 213-370-3011. C

Utility Trailer, 4 x 6, 2-wheel, \$40. 213-377-3487. C

Cabin, Big Bear Lake, sleeps 9, modern, completely furn., \$12,000. 213-867-0662. C

Disc Brakes, fit all 1939 thru '48 Fords, alum. housing w/full discs, \$50. 213-375-1396. C

Razor, Norelco, rechargeable triple-header elec., 1 mo. old, \$15. 213-644-8081. C

Grave Site, Pacific Crest Cemetery, \$230, dble. interment \$122.50 more. 213-753-6277. C

Adding Machine, manual, \$20. 213-545-6719. C

Mini Bike, \$125. 213-324-7257. C

Pool, 3' x 12' Doughboy, access., \$25. 213-329-9021. C

Lawnmower, power, reel type, \$20. 213-672-2370. C

Amplifier, beginner's guitar, 5 w. w/tremolo, \$25. Box 1403. C

Dog, sheltie, male, sable & white, champ. sireld, \$100. 213-374-6727. C

Pups, Norwegian elkhound, 4 mos. old, 2 males, \$35-50. 805-498-3555. C

Camper Shell, 8', insulated, windows & screens, sink & stove, \$255. 805-498-6512. C

Trailer, 2-wheel, box 4' x 8' x 2', 15" tires, \$125. 213-370-4045. C

Shopper, elec., fiberglass body & top, \$650. 213-675-5920. C

Organ, Lowrey Holiday model, \$450. 213-866-0924, 213-867-9467. C

Piano, walnut upright studio model w/bench, \$250. 213-776-1801. C

Holster Set, complete hvy. duty police rig for revolver, \$30. 213-962-2867. C

Motorcycle, 1966 CZ Jawa dirt ready, \$300. 714-494-6940. C

Radio Directional Finder, Heathkit, professionally wired, \$25. 714-530-2271. C

Typewriter, IBM elec. Executive, 18" carriage, \$125. 213-372-7994. C

Receiver, 50 w. AM-FM stereo, 12" spkrs., walnut, \$200. 213-329-1705. C

Surfboards, 2 ea. 9' long, \$50. 213-633-2395. C

Motorcycle, 1966 Harley Davidson, 250 cc sprint, \$325. 213-644-8238. C

Pups, English springer spaniel, males, AKC, champ. b/ground, \$65. 714-962-8983. C

House, 2-bdrm., lease-option, large yard, near Hawthorne High, \$175 mo. or \$21,000. 213-375-5009. C

Bathroom Sink w/faucets attached, white, \$10. 213-423-1363. C

House, 4-bdrm., 2 baths, bltin range & d/washer, h/floors, f/place, will finance, \$28,500. 213-329-0639. C

Home, 3-bdrm., 3-car gar., rumpus rm., new cpts., fenced, near schools, P.V. Penin., \$46,750. 213-375-1380. C

Roofing, Mission tile, approx. 5 squares, \$200. 213-582-1079. C

Wedding Ring Set, ladies' interlocking, white gold, diamond & smaller stones, size 7, \$350. 213-676-8789. C

Wanted to Buy

Motor, elec., 60 cy. 1/4 h.p. or more. 213-831-3938. D

Shop Manual for 1964 Olds 88, 5 vol. 213-376-5192. D

Wanted to Buy

Refrigerator, operating & clean, up to \$50. 213-861-6404. D

Ammunition, reloaded, high-base 12-gage reloads using my brass. 213-542-4619. D

Sleeping Bag, down, good quality backpack & rack, good condition, reasonably priced. 213-325-0360. D

Trailer for 12' boat, 800 lb. capacity, outbd. eng., 45-75 h.p. Merc. preferred. 714-644-1195. D

Lot or acreage, in or near Paradise, Calif. 213-675-6668. D

Free (To Be Given Away)

Kittens, 4 females, 2 males, gray w/white & calico. 213-429-4200. F

Kittens, 4, avail. Aug. 1, 1 gray, 1 tiger, 2 black & white. 213-377-1094. F

Kittens, 6 wks. old, trained, weaned, males & females, 1 tiger, 2 black & 3 black & white. 213-834-6073, 213-835-4929. F

Kittens, 7 wks. old, solid grey or black, box-trained. 213-323-7798. F

Rentals Offered

House, 2 baths, 3-bdrm., dps., d/washer, gar., Hollyglen, near Mariposa facility, \$250 mo. 213-394-7523. G

Apt, unfurn., 1-bdrm., cpts., dps., utils. paid, suitable for 1 person, 5 min. from Aircraft, \$125 mo. 213-644-4608. G

Cabin, Green Valley Lake, \$30 w/end; \$60 wk. 213-324-9769. G

Girl wanted to share apt. w/2 others, furn., 2 baths, 1/2 blk. from beach, Manhattan, \$110 & share utilities. 213-545-3825. G

House, 3-bdrm., 1 1/4 bath, cpts., fam. rm., f/place, fenced back yd., 2-car det. gar., bltins, lease, \$225. 213-329-0761. G

Apt, furn., lge. heated pool, patio, cpts., dps., bltins, closed gar., near El Camino, adults, \$170. 213-329-5986. G

Cabins, Lake Gregory & Crestline, sleeps 6, \$25 w/ends; \$60 wk. 213-391-2040. G

Cabin, furn., 2-bdrm., Green Valley Lake, between Big Bear Lake & Arrowhead Lake, 7,000' alt., 4 single beds, 1 dble., \$15 day, \$85 wk. 714-633-5521. G

Lady wanted to share house, 4-bdrm., pool & spa, pvt. room & bath, Garden Grove, \$110 mo. 714-897-9407. G

House, small 1-bdrm., furn., cpts., disposal, self-defrosting refrig., 2 miles from Northrop, water & trash pd., prefer 1 person, \$110. 213-676-8833. G

House, Thousand Oaks, 3-bdrm., 2 baths, water & gardner incl., \$235 mo. 805-495-6819. G

Apt, 2-bdrm., unfurn., cpt., bltins, carport, no pets, close to Northrop, \$140. 213-676-7423. G

Cement Mixer, 1/3 sack capacity, can be towed w/auto., \$2.50 day. 213-673-4280. G

Rentals Wanted

Apt, 1-bdrm., unfurn., 1st floor, for elderly couple, San Pedro-Lomita area. 213-377-1807. H

Trailer, 2 adults & 2 small children, kitchen facilities, for a week. 213-326-0114. H

Camper w/truck, week beginning Aug. 9, can loan replacement car. 213-833-3788. H

Room & board, University of Irvine male student. 213-370-7092. H

House, 2-bdrm., fenced yard, gar., washer & dryer connections, \$155 max. No. Redondo, or Torrance area. 213-376-9214. H

Child Care

Child Care Wanted, my home, infants or toddlers, Hawthorne. 213-644-7578. I

Rides and Riders

Rides Wanted

7 a.m. — 4 p.m.

Felton Ave. & Century Blvd., Inglewood. Harriet Lebitty, Elec. Haw. ext. 510, 213-677-2319.

7:24 a.m. — 4:06 p.m.

So. Vermont & El Segundo, Gardena. Joanne L. Irwin, Mariposa ext. 6411, 213-321-1315.

8 a.m. — 4:45 p.m.

Capital Dr. & Gaffee, San Pedro. Karl S. Baird, Elec.-Mech. Haw. ext. 616, 213-833-2627.

Lakewood Blvd. & Imperial Blvd., Downey. Morris Brown, Aircraft ext. 5121, 213-861-8508.

Rides Offered

8 a.m. — 4:45 p.m.

Capital Dr. & Gaffee, San Pedro. Karl S. Baird, Elec.-Mech. Haw. ext. 6121, 213-833-2627.

Personals

I wish to express my gratitude to my many friends & fellow workers at the Hawthorne & Santa Fe facilities for the thoughtful expressions of sympathy, flowers & kindness relative to the recent loss of my mother. LILLIAN STROH.

Heartfelt thanks to my friends in the Engineering & Science Center for the cards during my recent illness. C. MC FADGEN.

I wish to thank all my friends at Northrop for the flowers, cards & expressions of sympathy in the recent loss of my wife, Muriel Phillips. WILLIAM PHILLIPS. L

I wish to express my sincere thanks for the flowers sent by NRC to the funeral of my mother, Ann Nita Fuhman. I shall never forget the thoughtfulness of this company in paying tribute to my mother. CONWAY J. FUHRMAN. L

For Sale or Trade

Utility Shed, metal, 6'x10' w/4x4 supported floor & 4' lamp, \$150 or trade for good deer rifle. 213-324-8891. M

Jaguar, 1950 3.8 sedan, Hydromatic, p/s, complete eng. & trans. & cooling system o/haul, \$1,200 or trade for VW. 213-291-2562. M

DAN SWANBURG AT JAMBOREE

Dan Swanburg, an Eagle Scout, represented the Northrop Recreation Club at the recent 7th National Jamboree of the Boy Scouts of America held at Farragut State Park, Idaho.

The encampment in the Idaho Mountains near Lake Pend Oreille, drew 42,000 scouts, explorers and leaders. The Jamboree is held every four years.

Dan is a member of Troop 262, Hawthorne, which is sponsored by Northrop. His Jamboree troop had several training and get-acquainted campouts at the Firestone Scout Reservation before leaving.



BIG FAMILY—This unusual shot of Boeing's family of jetliners was taken at Boeing Field, Seattle, Washington. Northrop provides floor panels for the short-range 737 (foreground), the outboard wing panels and the entire aft section—except for control surfaces—for the 707 (second from top), and the 153-foot fuselage section, wing and body fairings, stringers, and floor panels for the newest member of Boeing jetliners, the 747. The 727 (second from bottom) was built entirely by the Boeing Company.



FIRST TO SIGN for the coming visit of the Red Cross Blood Bank to Anaheim is Selsa Osuna, left. Mrs. Osuna, E&E Assembly, is an enthusiastic supporter of the Blood Bank and always among the first to volunteer, according to Esther Jones, industrial nurse, right.

Red Cross Blood Bank Scheduled for August 12

The Red Cross Blood Bank is scheduled for its next semi-annual visit to the Electro-Mechanical Division on August 12, according to Esther Jones, industrial nurse.

The bank will operate from

noon until 4:30 p.m., Room 138, Building Y-2.

"Response to our previous requests for Blood Bank support has been excellent," Miss Jones said. "This time we will need 200 signatures to meet our assigned quota."

Donations to the bank are credited both to the account of the donor and to the Northrop company account. Northrop personnel may draw from either account in emergencies.

Return Your Picnic Reservations Soon Randy Requests

Reservation requests for the Electro-Mechanical Division's Old Fashioned Family Picnic were included with last week's paychecks and all picnickers are urged by Randy Lee, special events chairman, to return them by August 1.

"Park facilities are limited to 2,500 persons," Randy said. "Reservations will be accepted on a first-come, first-served basis. There is only a 25-cent charge each for Northrop employee and members of their families. There is no greater bargain in fun to be found anywhere."

The picnic is set for Sunday, August 24 from 10:30 a.m. to 5 p.m. at Swiss Park, 2501 E. Huntington Drive, Duarte.

Picnic will include games and contests, magic show, puppet show, music and dancing, pony rides, kiddie rides, clowns, prizes galore and free soft drinks, ice cream and popcorn.

JAN SIZELOVE TO SONG-LEAD CLINIC

Jan Sizelove, 15, daughter of Jerry Sizelove, Electro-Mechanical Security group, will attend the Hibbards Song-leading Clinic at LaVerne College.

Jan is one of six songleaders selected by the student body of Laguna Beach High School to represent them at athletic events and other school functions.

Mc INNIS

(Continued from page 1)

M. A. Seeley, chief; Manufacturing Engineering group, L. D. Persons, chief; Fabrication Production group, G. R. Gunderson, chief; Assembly and Stringer group, D. A. Niccoli, chief; and Ordnance Production group, C. T. Tucker, chief.

CARPENTER LEADS GROUP

Nine Share in July Suggestion Awards

Richard L. Carpenter, Page Court, topped the Suggestion Award group with a \$161 award for proposing the relocation of sewing machine controls to reduce vibration, according to Larry King, Suggestion Award administrator.

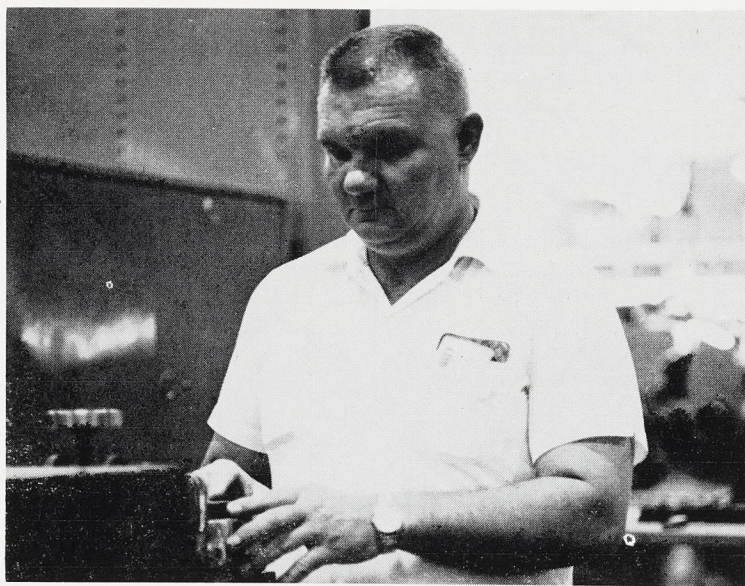
Second largest award went to Vernon C. Rand, Page Court, who suggested installation of an air valve on pneumatic lines used on three lathes to eliminate possible breakage.

The next largest award was \$64 made to William Webb, Page Court, who proposed combining turning and threading operations.

L. J. Perkins was awarded \$48 for proposing installation of an adjustable indexing stop on an hydraulic broach so adjustment can now be made in seconds.

In other awards, Walter G. Brown, Page Court, received \$25 for suggesting a go-no-go step gage for inspections. Wallace H. Polk's idea for a special purpose lever to remove stringers from

dies brought a \$19 award. Lois Smith, electronics assembler, received \$15 for proposing a set of common divider bases for grouping cables. James E. Hart, Machine Shop, received \$13 for proposing the modification of a drill fixture, and George Pappas got \$10 for an idea that permits operators to drill precise depths with confidence.



TOP SUGGESTER of the month is Richard L. Carpenter, Page Court.

Kenneth Colson Attends Seminar At War College

Kenneth R. Colson, engineering specialist, with Automation Systems, Electro-Mechanical Division, recently attended the two-week Defense Strategy Seminar while on U. S. Air Force active duty as a major.

The seminar, held annually since 1959 at the National War College, is designed to cover the major aspects of national security.

The curriculum is based on subjects presented in the graduate level course conducted each year at the National War College for senior career officers on active duty in the armed services.

Lt. General John E. Kelly, commandant, noted that being chosen to attend the seminar is "a distinct honor that is accorded only carefully selected officers of the reserve forces."

Astronauts — Quarantine Facility Holds Moon Samples

(Continued from page 1)

Purpose of the Lunar Receiving Laboratory are:

- Quarantine and testing for possible harmful organisms in the lunar samples brought back from the moon.

- Scientific sample investigations that must be carried out within the quarantine period.

- And repackaging and distribution of the lunar samples to

scientists throughout the world for detailed investigation after the quarantine period.

After splashdown, the astronauts entered a specially designed quarantine facility directly from the Apollo 11 spacecraft by way of airtight plastic transfer tunnels.

This mobile facility was then transferred to Houston after a flight from Honolulu. They were welcomed to the Lunar Receiving Laboratory by BRN personnel only a few days after their recovery in the Pacific.

SERVICE PINS GIVEN SEVEN EMPLOYEES

Two veteran Northrop Employees will complete 20 years' service with the company and five others observe their 15th anniversary in August.

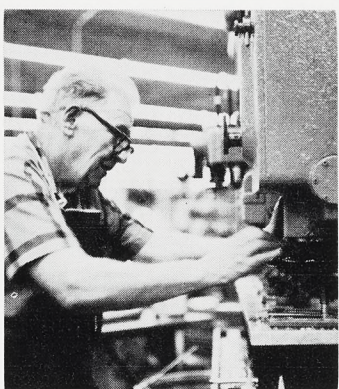
Those with 20 years are Nicola Di Risio, Maintainability Engineering, and Ralph Dobner, Ordnance Manufacturing Planning. Fifteen year veterans are Mario Del Pesco, Support Estimating; Charles Rainey, Ordnance Manufacturing Planning; Neal McKenzie, TEAMS Program; Drexil Forkner, Palos Verdes; and John Brown, Opto-Mechanical Development.

Algrin Boys Win Fitness Awards

Frank Algrin, 15, and his brother, Richard, 14, sons of Efrain Algrin, multilith operator with the Electro-Mechanical Division, both received 1969 Presidential Physical Fitness awards.

The awards, consisting of a citation and emblem, are given only to those who meet rigid physical fitness and body conditioning standards during the school year.

On The Job



ED BUBLA operates a profiling machine, reproducing parts from templates for the T-38 program. The multi-station machine can reproduce four parts at a time. Ed has been with Northrop for 17 years and his work is a vital part in the service the Electro-Mechanical Division provides for the Aircraft Division.

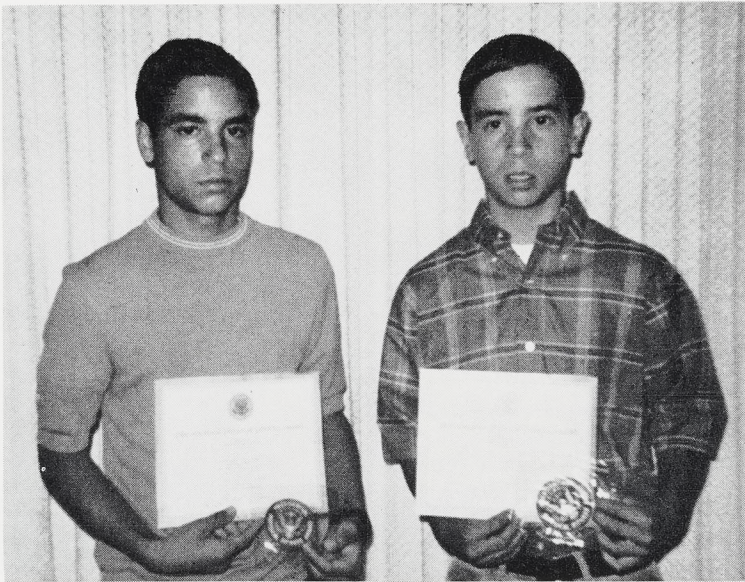
MANAGEMENT CLUB PLANS MEETING

The regularly scheduled meeting of the Nortronics Management Club, composed of members of the Electronics and Electro-Mechanical Divisions, will be held at 6:30 p.m., August 13, at the Long Beach Elks Club.

Conrad Jamison, vice president of the Research and Economics branch, Security Pacific Banks, is the scheduled guest speaker. Mr. Jamison will discuss the "Financial Status of the United States and How it Applies to the Individual."



WINNERS in the recent 8-Ball Billiards tournament are from left, Garry Dearen, Leo Miller, Jim Melatti and Bill Ishmael. With them center is NRC Commissioner Earl Jackson. Mr. Melatti, teaming with Larry Bloomquist, not shown, took first. Mr. Dearen and Mr. Miller were second. Mr. Ishmael teamed with L. B. Lamberth, not shown, for third. The next tournament round will begin in September. Commissioner Jackson says that more players are wanted. Call him at ext. 1249.



FRANK AND RICHARD ALGRIN display the plaques and emblems they received for their excellent showings in the Presidential Physical Fitness program.

NORTHROP NEWS

ELECTRO-MECHANICAL DIVISION EDITION

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Management Systems Is Established

A Management Systems group has been established within the Electro-Mechanical Division, taking over functions formerly performed for the division by the Electronics Division, according to R. L. Gibney, manager, Financial Management department.

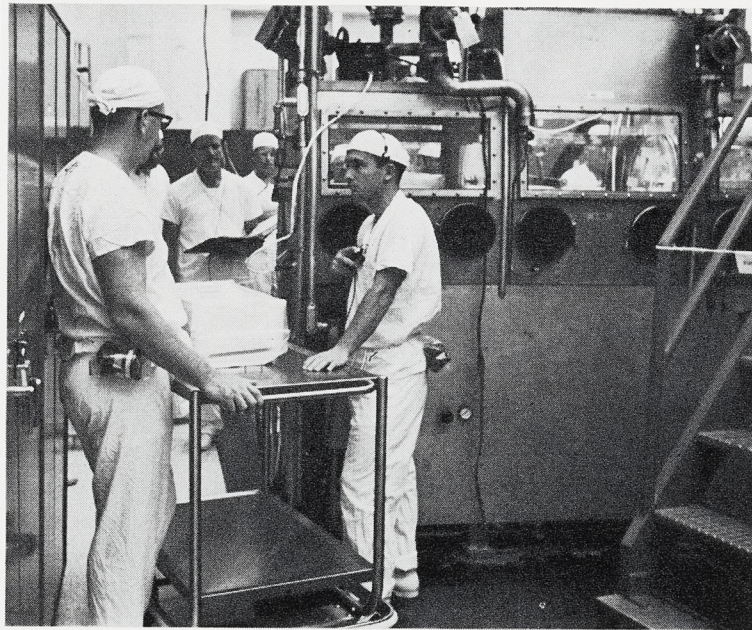
R. M. Shave will direct activities of the new group which will include:

- Business Systems Development unit. H. A. Turner, supervisor, will be assisted by Gary Laughman, Gene Kennedy, Carlos Stemens and Jim Cleary. Also reporting to Mr. Turner are Betty Stout, Carol Rosenblat, Loma Spidle, and Nancy Cramond of the Data Recording unit.

- Procedures unit. Responsible for management manual control, forms control and records management, with W. D. Rains in charge. He is assisted by Marvin Jones and Dorothy Henry.

Other members of the group include Pat Davis, secretary, Harry Ewing, Don Allyn and Marilyn Wilson who will continue to handle the accounts systems and data processing coordination with Northrop Data Processing.

"Centralization of our activity within a single division will enable us to concentrate more specifically on the division's Business Systems requirements," Mr. Shave said.



FIRST MOON ROCK BOX, containing lunar surface material arrives at the NASA Lunar Receiving Laboratory. Transporting it are Bill Davis and John Crawford of the Brown and Root-Northrop Vacuum and Transfer group. Visible in background are John Powers and Bill Stanton.

Human Pattern Factors Programmed Into 1070

Northrop's 1070 computer is being programmed with the aid of the IBM 360-65 to "learn" to make correct diagnostic decisions by a process which mimics human pattern recognition.

The programming is being done by engineers in the Electro-Mechanical Division's Automation Systems to automatically diagnose equipment malfunctions. The diagnostic decisions are not

predetermined by the programmer according to some known procedure.

"Pattern recognition by machine is the forerunner to artificial intelligence," said V. E. "Bill" Galanoudes, Northrop research engineer and a doctoral candidate at USC. "But, our objective is more mundane. We need the pattern recognition capability to locate and predict malfunctions in equipments on the basis of limited, often insufficient, measurements. This is the same problem physicians face in the diagnosis of diseases."

Pattern recognition, according to Bill Nicholson, R&D chief, "is a process of correlation of some-

(See COMPUTER, page 6)

FRINGE BENEFIT SERVICE PLANNED

On August 15, all Northrop employees on the West Coast will receive with their paychecks a card which must be filled out and returned to assist the company in completing a new service.

This service will be an individual report to each regular employee showing his or her fringe benefits at Northrop. The report, to be mailed to each individual later this year, will provide facts and figures on the various Northrop protection plans and also will project the fringe benefits forward to the time of retirement and should assist Northrop personnel in their individual estate planning.

The card enclosed with the August 15 paycheck will request each person to list the name of his spouse and three youngest children under 18 years of age, along with their dates of birth. The information thus supplied will be kept confidential, but is necessary to insure that the individual fringe benefit statement is accurate and complete.

Please fill out and return the information card as promptly as possible.

BRN Technicians Open Moon Box, Touch Rocks

Jack Warren and Bob Eason of Brown and Root-Northrop were the first men on the earth to touch the moon rocks brought back by Astronauts Neil Armstrong, Edwin E. Aldrin, Jr., and Michael Collins.

Following the successful splash-down in the Pacific, the rocks were transferred under strict quarantine to the NASA Lunar Receiving Laboratory staffed by Brown and Root-Northrop technicians at the Manned Spacecraft Center in Houston, Texas.

Here Brown and Root-Northrop's Jack Warren, technician in the vacuum sample laboratory, opened the first box of moon rocks. The operation was carried on with the box inside a vacuum chamber with Mr. Warren working from outside by means of heavy rubber gloves that permitted his arms to extend inside the chamber.

After the first box of rocks was opened by Mr. Warren, Bob Eason, also a Brown and Root-Northrop vacuum sample laboratory technician, split the first rock.

The splitting was part of the

analytic process which will determine its content. A visual inspection of the rock disclosed a flaw which simplified Mr. Eason's work. Working through the glove openings into the vacuum chamber that held the rock, the Brown and Root-Northrop technician placed the material on a small table under a steel wedge. A jack screw was then turned by hand to raise the rock and press it against the cutter.

Following the cutting of the rock into smaller pieces, Mr. Eason replaced them in sterile containers for transmitting to other testing laboratories. They will be studied to see if they give off gases, have a magnetic field or have radiation. The strict quarantine and vacuum operations are necessary to insure that the rocks

(See APOLLO, page 6)

Dr. Simecka Heads Tactical Systems Function

Dr. William B. Simecka has been named to the position of manager of Tactical Systems. The Electro-Mechanical Division maintains technical staff and facilities in support of NASA's Marshall Space Flight Center operations.

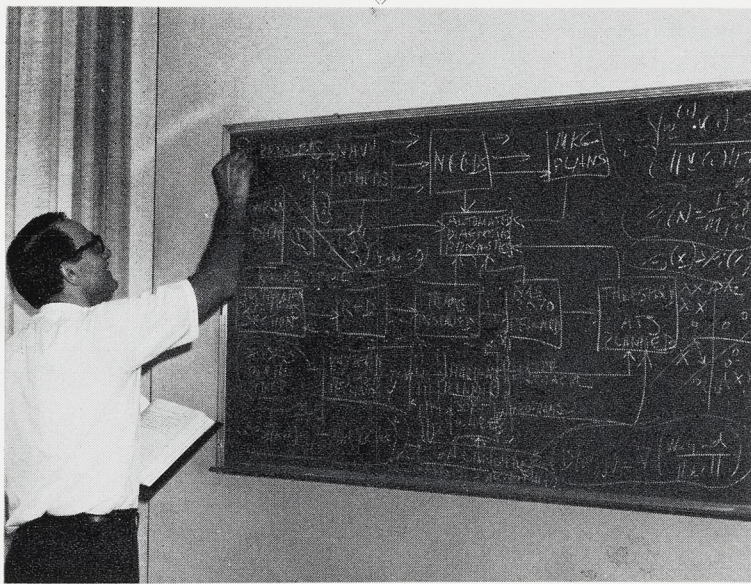
Some Tactical Systems personnel are performing analysis of Army Missile Command programs at Northrop's Huntsville facilities.

Dr. Simecka was formerly chief scientist for Northrop's Anaheim department. He will continue to make his headquarters in Anaheim. He holds a Ph.D. from the

(See DR. SIMECKA, page 6)



Dr. Simecka



BILL GALANOUEDES uses blackboard to solve a problem connected with the memory recognition program.

Layout Fixture to Accurately Locate Hole Patterns Is Top Suggestion

A layout fixture that accurately locates hole patterns without subsequent measuring led the Suggestion Awards at the Electro-Mechanical Division for last month.

The idea brought a \$52 award to Ronald C. Staudenmayer, Assembly and Stringer group.

The second largest award went to Frederick S. Stark, Reliability Engineering, for a fuse adapter for centrifuge test which resulted in increased safety for test operators. He received \$50.

John R. Allen, Machine Shop, received \$36 for proposing the

use of an insert type tool which eliminates removing tools for grinding in certain types of work. When a tool loses its edge, the insert is quickly replaced.

Lionel J. Rainville, Page Court, got \$34 for an idea to condense and trap salt vapors before they reach the purge pumps and thus reduce the number of pump clearings. B. F. Brewster, Boeing 747 Stringer Tool Engineering, received \$24 for his idea on modifying support yokes for baskets used for degreasing stringers which now

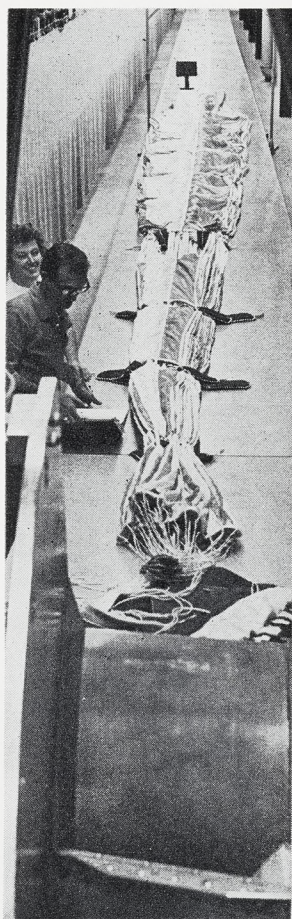
(See SUGGESTIONS, page 6)

SEEING IS BELIEVING—MAYBE!

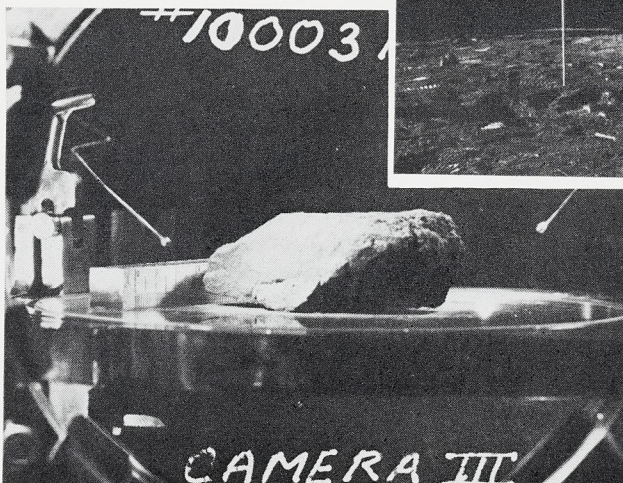
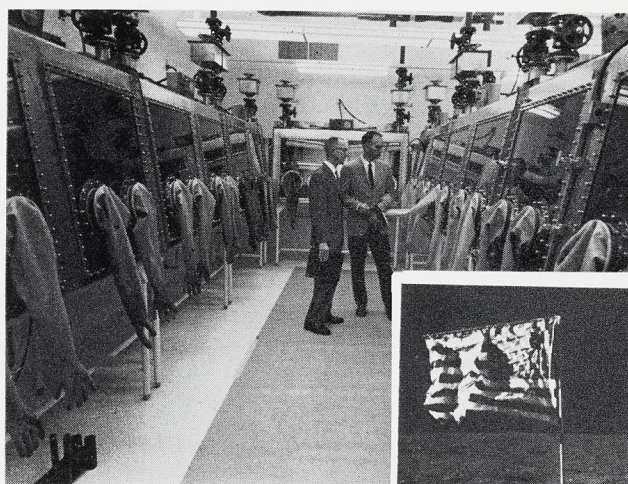


ARE THEY REALLY MAKING hot dogs this big at the Electro-Mechanical Division Old Fashioned Picnic coming up August 24? It must be true for that is Ed Robertson, commissioner, Deep Sea Fishing Club, on the right, and Art Bowser, commissioner, Fresh Water Fishing Club, on the left, and you know how fishermen are traditionally known for their love of truth. Anyway, Randy Lee, center, promises you will have a time as big as this hot dog looks.

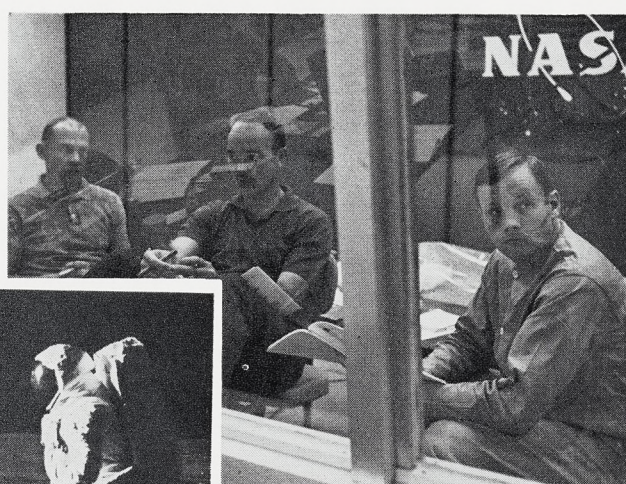
Moon Mission Spotlights Northrop's Many Apollo Roles



PACKING 'EM — Northrop Venturans Stan Enger and Norma Cretal pack a Ventura-produced Apollo parachute in that Division's Paralab.



IT'S HISTORY—Around Astronaut Aldrin on the moon, from bottom left, clockwise, are: first lunar sample; Astronaut Collins checking Brown and Root-Northrop LRL before launch with Richard Wright, LRL executive assistant;



Apollo 11 astronauts in first debriefing; and technician operating Northrop-built Biomedical Recording System readings of spacemen on USS Hornet. (NASA Photos)



JUBILATION — Flight controllers at NASA's Mission Control Center in Houston cheered and waved American flags when Apollo 11 splashed down.

NORTHROP NEWSMAKERS

Frank Tipton, Ventura, has been elected to the board of directors of the Ventura County Economic Development Association.

Al Robinson, Ventura, attended a recent conference of JOB representatives for the National Alliance of Businessmen at the Airport Marina Hotel in Inglewood. He was the Ventura County representative.

Dr. Y. P. Gupta, Northrop Corporate Laboratories, has authored an article titled "On Electrical Switching and Memory Effects in Amorphous Chalcogenides" for presentation at the SEAS Symposium and possible publication in the Journal of Non-crystalline Solids.

Andrezej Wortman, Aircraft Division, has written a paper on "Reentry Vehicle Altitude, Velocity Sensor" for presentation at the AIAA Guidance, Control and Flight Mechanics Conference, Princeton, New Jersey.

LRL ACTIVITY IS RADIO SHOW'S TOPIC

News of the lunar astronauts inside their Lunar Receiving Laboratory at the Manned Spacecraft Center, Houston, was broadcast daily in special newscasts sponsored as a public service by Brown and Root-Northrop.

The Receiving Laboratory is manned by technicians from Brown and Root-Northrop, a joint venture of Brown and Root and Northrop Corporation.

The program provided up-to-the-minute news and information on composition of the lunar soil, rocks, as well as information about the astronauts themselves.

Antonio J. Mendez and **James R. McPherson**, Northrop Corporate Laboratories, have co-authored an article titled "ODP Techniques Applied to the Quality Control of Semi-Opaque Thin Films" for presentation at the S.P.I.E. Photoptical Instrumentation Applications and Theory Technical Symposium.

Robert E. Lowrie, Aircraft Division, has written a paper titled "Thin-Film Diffusion of Titanium-Alloy Aerospace Components" for presentation at an Aerospace Structures Design Course.

D. L. Dyer and **C. H. Fuller**, Northrop Corporate Laboratories,

have co-authored an article titled "Vidicon Microscope System for Counting Fluorescent Particles" for publication in the Review of Scientific Instruments.

Ozzie Levi, Northrop Central Region office, has been elected chairman of the American Helicopter Society, Dayton Section.

K. Mori and **D. L. Dyer**, Northrop Corporate Laboratories, have co-authored an article titled "Cytofluorometry of Europium Binding During Development of Leukemic Granulocytes" for possible publication in the Journal of Hematology.

PARADE FLOAT A WINNER



FIRST PLACE winner in the "Theme Commercial" class of the Hawthorne Community Fair Parade went to this Northrop float. Featuring a "Moon Mission" theme, the float was graced by these lovelies, from left, Cathy Young, Vivien Martinez, Mary Ann Granison, Janice O'Bryan, Peggy Roth, Emily Ramirez, Gayle Drayer and Nancy Gibson.

Roland Davidson Named Equal Opportunity Chief

Roland J. Davidson, former consultant to the Fair Employment Practice Commission of California, has joined Northrop Corporation as Corporate administrator of Equal Employment Opportunity.

His appointment was announced by Alan C. Morgan, vice president of Industrial Relations. Mr. Morgan said Mr. Davidson's responsibilities would include coordination of affirmative action programs to encourage members of minority groups to join Northrop, and to insure that the work environment is suitable for holding their continued interest.

"We want to be sure," Mr. Morgan said, "that members of all minority groups who join Northrop—or already are employed here—will be offered every opportunity for advancement and to increase their skills for higher responsibility."

"We have long had individuals charged with these responsibilities at our various divisions," Mr. Morgan added, "but this is the first time we have assigned an administrator for coordinating our over-all corporate effort in equal employment opportunities. We feel Mr. Davidson will assist in achieving a cross-fertilization of good ideas among our operating divisions."

Before joining Northrop, Mr. Davidson has served for six years as minority personnel utilization consultant for the FEPC Los Angeles office. Before that he held a number of positions including

service with the U.S. Post Office Department and the Los Angeles County Sheriff's Department.

After receiving his early education in New Orleans, Mr. Davidson attended Los Angeles junior colleges and studied social action and human relations at the University of Southern California and Loyola University.

Mr. and Mrs. Davidson and their three children are residents of Los Angeles.



Mr. Davidson

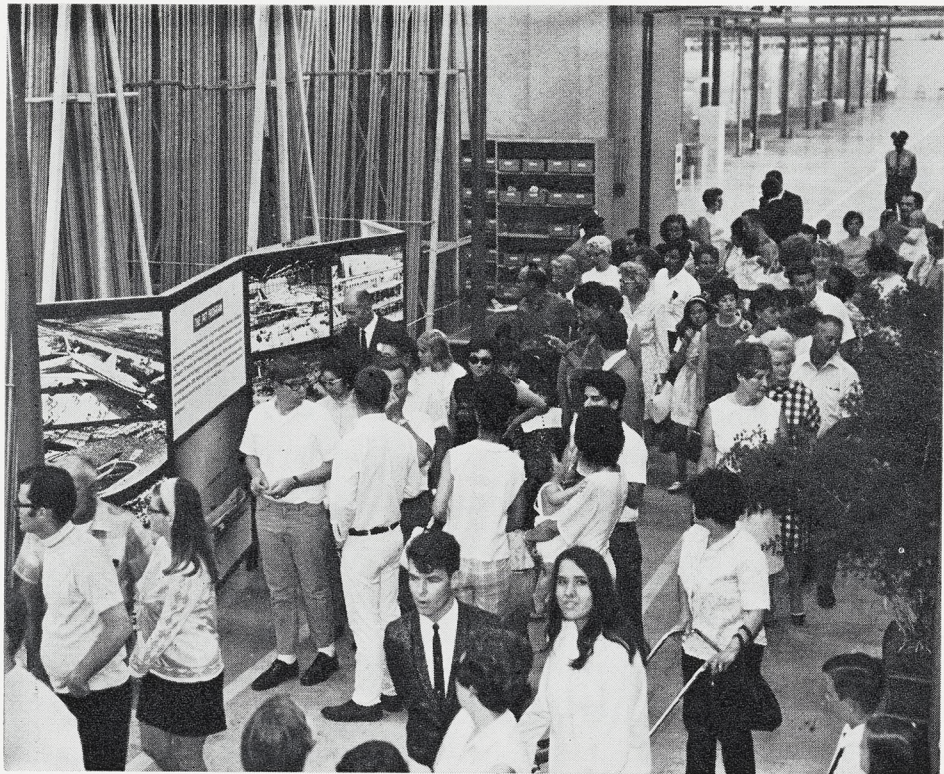
Savings Office Asks Addresses of Former Employees

Northrop Corporation's Savings Plans office is again seeking the help of present employees in locating former Northrop employees to advise them of money being held for them.

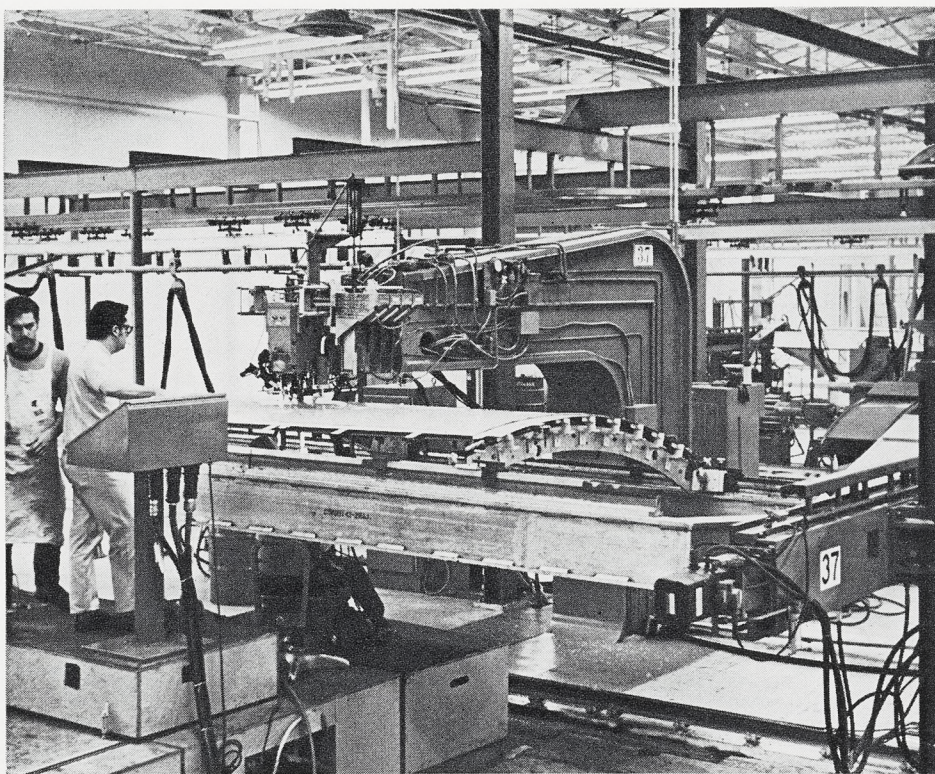
Personnel knowing the current address of those listed below are asked to notify Corporate Savings Plans Administration by calling extension 302 at Beverly Hills.

Sought are Robert C. Dixon, Eugene G. Everett, Pat R. Mastroianni, R. L. Modzel, Edward C. Willis, Freddie O. White, Jr., Leslie H. Echols, Vernon Manus, Charles A. HoChing, Allene M. Mellen, Newton R. Fairbanks, Horace E. Niles, Georgia M. Bailey, Joe A. Moore, Edward C. Marciniak.

Clayton H. Bakke, Robert H. Nunnery, Berlyn H. Fishburn, Bernard D. Brumbaugh, Ronald Hladak, Harry W. Fields, Don Marshall, Kenneth L. Hawkins, Kenneth C. Johnson, Charles R. Ferrell, Joseph R. Johnston, Solomon Espinoza, Emmor E. Markel and Louis R. Diaz.

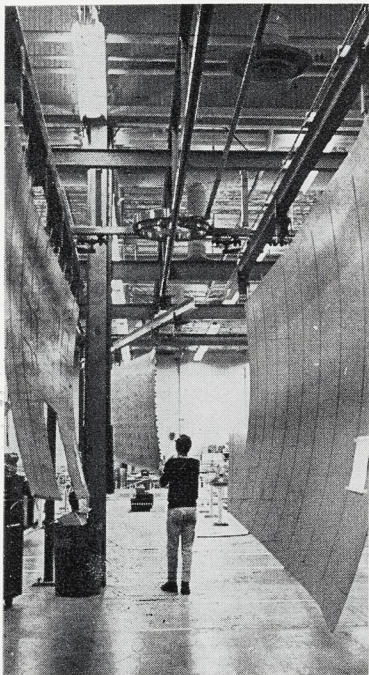


EMPLOYEES AND FAMILIES TOUR ALAMEDA FACILITY



AUTOMATED RIVETING MACHINES IN OPERATION

Alameda Facility Meets Need for Increased Production



MONORAIL SYSTEM (above) permits R. C. Rager to position skin panel in sub-assembly area. E. L. Robinson (below in light shirt), aircraft mechanic, confers with supervisor about stringer emplacement.

The latest addition to Northrop Corporation's expanding production capability was formally dedicated August 3 in the city of Compton.

Known as the Alameda facility, the 150,000-square-foot manufacturing center is operated by the Aircraft Division. It will be utilized in meeting programmed increases in production schedules of major subassembly work for the Boeing 747 jetliner program.

Aircraft Division officials consider the total production system represented in the facility to be the most highly automated installation of its kind in the aircraft industry. They predict it will achieve savings of up to 50 per cent in production handling costs.

The Team

Transfer of equipment and personnel into the center has been in progress since early this year.

Approximately 400 Northrop employees, working under Superintendent Bill Minner, will man the facility at peak production.

Subassembly of the 74 skin panel subassemblies required to produce the 27 sections which make up the 153-foot-long main 747 fuselage is centered at the Alameda facility.

The new facility replaces some of the production activities formerly conducted at Plant Three. It will enable the Aircraft Division to turn out nine and one-quarter ship sets of 747 components per month at peak production.

Equipment

It contains 138 FME (floor mounted equipment) installations. These include 28 subassembly, 74 RAJ's (rivet assembly jigs), and 36 combination pickup stands and inspection stations.

Six numerically-controlled riveting machines, called Drivmatics, are in use and another is on order. Each is capable of drilling, countersinking holes and installing rivets at a rate of 22 per minute. These machines install over 250,000 rivets in each ship set of 747 subassemblies.

Five of the Drivmatics are

programmed to handle compound curvatures, one handles single curvature panels only.

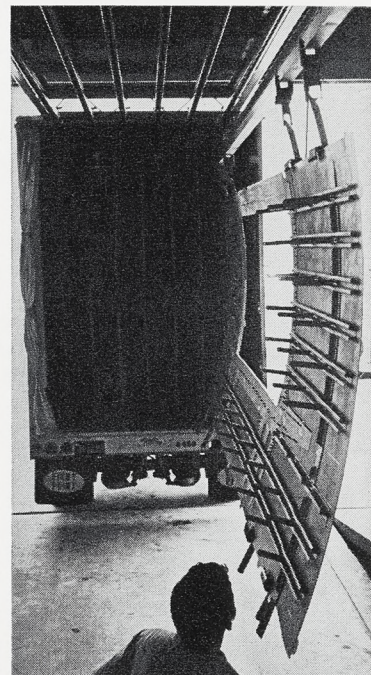
These units are being equipped with special light-sensor monitors to accomplish even more automated and efficient production.

An overhead system containing almost two miles of monorails serves the entire facility. Incoming materials are transported through the entire production sequence via this system. They eliminate possible "man-handling" damage and assure maintenance of the important no-blemish condition of materials required for the 747 Program.

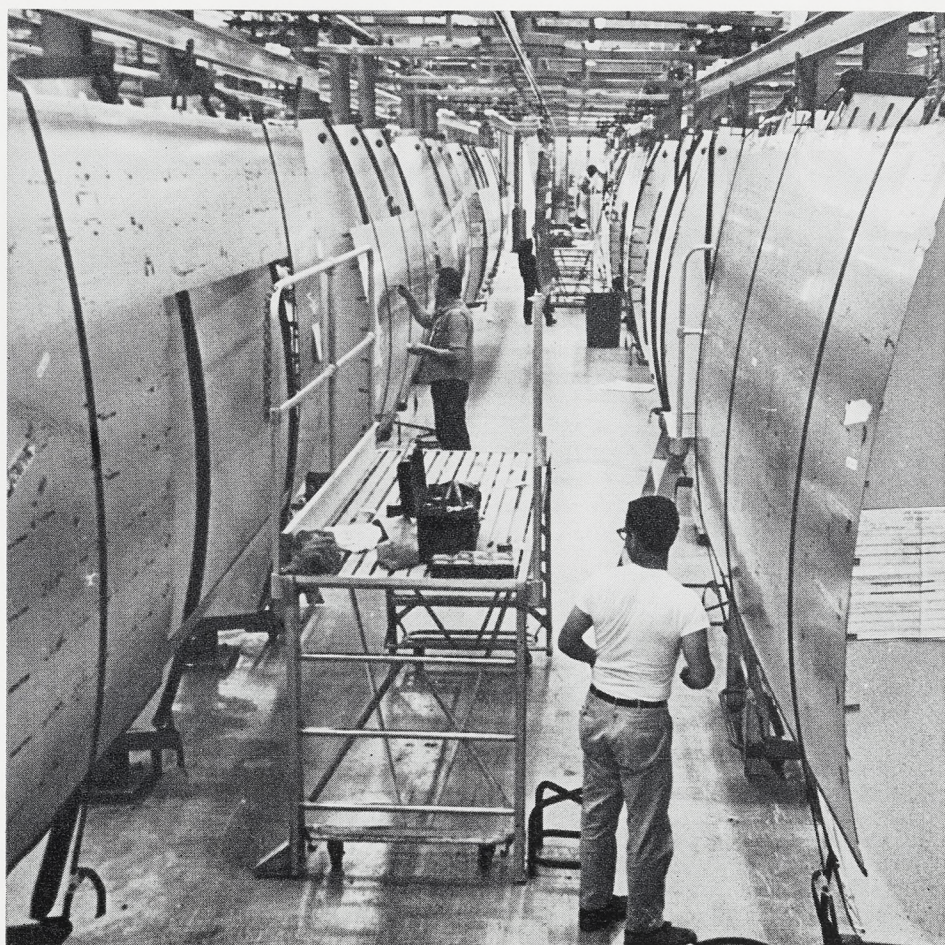
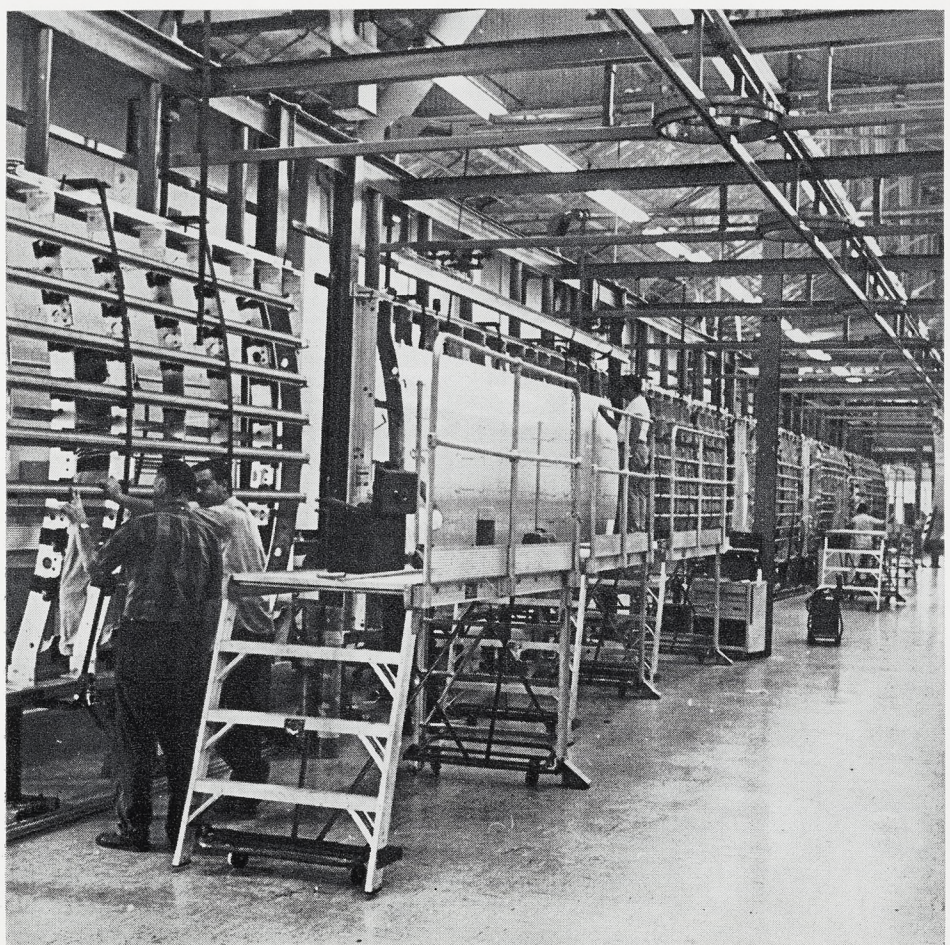
The facility can store as many as 126 "pure skins" (those being readied for first assembly) and 80 finished panels (including stringers, clips and all subassembly items).

Next Step

Subassemblies completed at Alameda are shipped to the Aircraft Division's Plant Three for final assembly into 747 fuselage sections prior to shipment to Boeing.



PORTAL-TO-PORTAL handling (above) of 747 skins on monorail insures attainment of rigid, no-blemish skin requirements. Below, Sequio Montoya (foreground) performs final assembly operations in pickup area while R. J. Major, places sticker on finished skin after final inspection.



WHAT DO YOU THINK?

What Event in History Compares With The Apollo Moon Landing



Mr. Slone

Ossie Slone, Plant Protection, Aircraft Division:

A comparable event in history would be the signing of the Emancipation Proclamation by Abraham Lincoln. I think it's comparable because it was such a big step forward for man. It made all men free.

Cathy Anderson, typist, Electronics:

I don't think anything does. The moon landing is the most phenomenal event that has happened in our history. It's like a new beginning.



Mrs. Anderson

Leroy Andrews, Data Processing, Electro-Mechanical:

I don't think exploration of space can compare with any previous event. It stands alone. As I look at the stars I can only think of the verses in Psalms where God said the heavens are for His Son and the Angels, and the earth is for man to inhabit. How far He will let man venture out there is up to His love and understanding.



Mr. Andrews

Colleen Pearson, technical illustrator, Ventura:

I think it would have to be the discovery that the earth was round and that it orbits around the sun.



Mrs. Pearson



Mrs. Hove

Betty Hove, Correspondence Control, Aircraft:
I can't think of anything that tops it.

Tom Shaughnessy, financial analyst, Electronics:

I'd compare the moon landing with Columbus discovering America. Both men, I think, discovered new worlds and certainly had an impact on civilization.



Mr. Shaughnessy



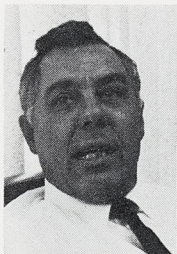
Mrs. Calhoun

Alana Calhoun, substitute clerk, Electro-Mechanical:

Space exploration and Columbus' discoveries are on equal standing to me. Both had the most modern equipment of their day and both took courage to face uncertainty.

W. A. (Bill) Downs, technical associate, Ventura:

There is no event that compares with it. Trying to compare this with something in history is like trying to compare any number of events that happen in an eternity. There is no comparison.



Mr. Downs

BLOODMOBILE SETS SEPTEMBER 3 VISIT

An American Red Cross bloodmobile visit has been scheduled on a two-shift basis September 3 for Northrop's Hawthorne complex personnel.

Operations will center at the new Northrop Flight Hangar with transportation from various areas. The hours are 9 to 11 a.m., 12:20 to 8:30 p.m.



THE RIVER RUNNERS plunge through the dangerous Merced River rapids in their rubber

boat. The river is not normally safe to "run" but heavy snow in the spring raised the level.

SHOOTING RIVER RAPIDS

Sherry Has Fast—And Wet—Vacation

Sherry Burr, Electro-Mechanical secretary, had a fast vacation—shooting the rapids on the Merced and Stanislaus rivers.

Sherry became a "river runner" after reading about the centennial celebration for John Wesley Powell's first run through the

Grand Canyon in 1869. The centennial has spurred interest in river running and it is estimated that nearly 8,000 people will follow Powell's Grand Canyon route this year.

Sherry's introduction to river running was on the Merced River flowing out of Yosemite National Park. Normally this river is considered impassable because of rocks and treacherous rapids.

"However," Sherry said, "this year an extraordinary Sierra snowpack raised the level of the river and some of the more experienced river-runners are flock-

ing in to challenge the Merced."

She made the run with a party of 10 in three rubber rafts. The run was just a practice for the following two days. "After drying out," she says, "I joined a group making a two-day run down the Stanislaus River."

She took up the sport even though she does not know how to swim and had never camped out in her life.

The Stanislaus trip featured stops along the route for hiking and exploring side canyons as well as limestone caves along the South Fork tributary.

W. C. Hogan's Two Soldier Sons Now Together in War

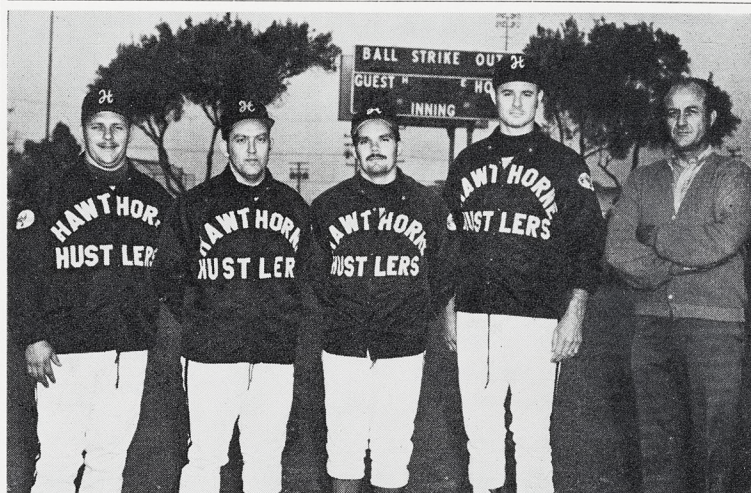
"It took some doing, but they finally got together," says W.C. Hogan, Key Control, with obvious satisfaction.

Mr. Hogan was talking about his two sons, 22-year-old William and 19-year-old Michael, who are now serving together in the 5th Special Forces Group stationed in Tho Chau, Republic of Vietnam.

William is a sergeant and has served in Vietnam for two and a half years. He has been awarded the bronze star for heroism in the assault of an enemy base camp and two other actions which raged from January 26 to February 13 of this year.

Michael, a specialist fourth class, is on his first tour of duty in Vietnam. He is a medic for his "Green Beret" unit.

Another son, Stephen, was recently discharged from the Ma-



TOURNAMENT BOUND — Aircraft Division employees form the nucleus of the Hawthorne Hustlers who will compete in the International Softball World Tournament. Pictured are left to right, Terry Birdsall, Billy Green, Jerry Flory, Greg Halberg, and Monte Halberg, general manager. Absent are Everett Crum, coach, and Ray Hofius, public relations.

Six Aircraft Division Softballers Head for 'World Series' in Illinois

Six Aircraft Division employees will be traveling east to compete in the International Softball Congress World Tournament August 22-31 in Rock Island, Illinois.

They are Jerry Flory, machinist; Monte Halberg, Facilities Work Control; Greg Halberg, Major Negotiations; Bill Green, Product Support; Terry Birdsall, Facilities Work Control; and Everett Crum, Planning Configuration Control.

The men are members of the Hawthorne Hustlers, who finished third in the Western Softball Congress with a 22-18 record. The W.S.C. is known as one of the toughest softball leagues in the country.

Most of the Hustler roster played on a team sponsored by

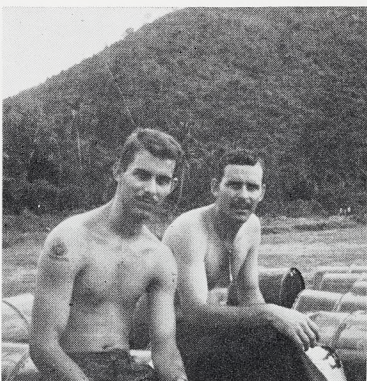
NRC for several years in an out-of-plant fast pitch league.

At least 30 teams will compete in the I.S.C. World Tournament. The event draws top teams from all over the United States.

Another Aircraft employee is involved in Hustler activities, but strictly from the sidelines. Ray Hofius, Product Support, handles the team's public relations as well as being their number one fan.

SKEET CLUB

The next NRC Trap and Skeet Club shoot is scheduled for Sunday, September 14, at the Watson Trap and Skeet Range, 2300 South Alameda, Carson. The meet will mark the final shoot for this season, according to Mark Burnett, commissioner, ext. 1597.



QUIET MOMENT — Sp.4 Michael Hogan (left) and Sgt. William Hogan relax during a quiet moment at their Special Forces camp at Tho Chau, Republic of Vietnam.

rine Corps, after a two-year tour of duty.

The only non-military member of the Hogan family, aside from Mr. and Mrs. Hogan, is daughter Patricia who is an "average American housewife."

"We are very proud of her, too," said Mr. Hogan.

Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

Mustang, 1967 fastback, GTA, 390 auto., a/c, p/s, AM-FM, p/disc brakes, \$1,900. 213-464-5161, ext. 531. A

Pontiac, 1967 GT0, p/s, p/b, \$2,150. 213-679-6749. A

Chevelle, 1966 S.S., 4-spd., 410 posit., Holley 4-bbl., extras, \$1,900. 213-374-6727. A

Volkswagen, 1964, \$900. 213-676-8833. A

Volkswagen, 1969, radio, 24,000 mile warranty, \$1,750. 213-325-1075. A

T-Bird, 1957, \$2,100. 213-322-2223. A

Oldsmobile, 1962 2-dr. h/top, full power, \$895. 213-376-8537. A

Ford, 1963 Galaxy 500XL w/390 eng., chrome rims, extras, \$650. 213-377-1478. A

Oldsmobile, 1957 Holiday, auto. trans., p/b, \$125. 714-897-3937. A

Volkswagen, 1966, \$1,200. 213-644-8555. A

Station Wagon, 1959 Ford, \$250. 213-534-4816. A

Corvette, 1960 327, r/h, tape deck, mags, Jardine headers, Hurst 4-spd., other access., \$1,495. 714-534-4435. A

Toyota 1966 Corona, 43,000 mi., \$1,100. 213-674-9515. A

Ford, 1968 Fairlane 500, 390 cu. in., r/h, p/s, auto. trans., 4-dr., \$2,400. 213-756-9448. A

Ford, 1931 Model A, 5-window cpe., rebilt. eng., \$950. 213-371-5468. A

Volkswagen, 1956, sunroof, radio, \$300. 213-376-3275. A

Station Wagon, 1962 Ford, \$395. 213-398-2464. A

Pickup Truck, 1959 Chev., V-8, stick shift, 7,000 mi. on new 283 cu. in. eng., 8' bed w/Highway Cruiser camper, \$1,295. 213-679-3492. A

Camaro, 1967, 327 V-8, p/b, p/s, r/h, auto. trans., \$2,075. 213-375-3647. A

Ford, 1958 Fairlane, 4-dr., 332 cu. in., auto. trans., \$250. 213-674-6081. A

Pickup Truck, 1961 Dodge, 6 cyl. stick, b/seats, AM-FM radio, 6' bed, \$850. 213-830-2547. A

Triumph, 1965 Spitfire 4, \$600. 213-377-8373. A

Borgward, 1961 Isabella, \$225. 213-645-6506. A

Dune Buggy, 1969, '66 VW chassis & eng., Spoiler body, \$2,300. 213-372-8157. A

Chevrolet, 1960 Impala, convt., all power, 283 V-8, \$250. 213-329-3286. A

Ranchero, 1962, standard trans., 6-cyl., \$550. 213-865-5133. A

Mustang, 1966, 289 hi-perf. Shelby B.P., 4-spd., d/brakes, racing susp., mag whls., \$1,750. 213-672-2186. A

Morris Minor, 1961, 4-spd., b/seats, \$150. 714-635-6138. A

Karmann Ghia, 1968, r/h, d/brakes, \$2,195. 213-325-9555. A

Station Wagon, 1964 Pontiac Catalina, p/s, p/b, \$950. 213-374-6003. A

Corvette, 1969 fastback, 427 cu. in., turbo-hydromatic, power d/brakes, AM-FM radio, \$5,400. 213-869-2302. A

Toyota, 1969 Corona, 2-dr., h/top, r/h, auto. trans., a/c, \$2,500. 213-282-0500. A

Falcon, 1962, r/h, 2-dr., \$295. 213-679-2610. A

Mercedes, 1961 220S, sunroof, \$1,000. 213-377-3041. A

Station Wagon, Volvo, \$1,000. 213-324-8265. A

Ford, 1950, convt., also spare eng. for parts, \$50. 213-329-4090. A

Pontiac, 1961, Catalina convt., p/s, p/b, r/h, \$450. 213-633-2395. A

Volkswagen, 1963, new clutch & brakes, \$895. 213-670-6084. A

Cougar, 1968 XR7-GT, 50,000 mi. warranty, \$2,800. 213-320-6272. A

Mustang, 1965, V-8, 4-spd., r/h, \$1,395. 213-370-5175. A

Dodge, 1960, r/h, auto., p/s, \$225. 213-375-7401. A

Chevy II, 1967 Nova, 6-cyl., p/s, a/c, 20,000 mi., \$1,700. 213-343-9747. A

Corvair, 1965 Corsa, 180 h.p., supercharged, 4-spd., r/h, \$750. 714-847-2648. A

Volkswagen, 1969, 6,000 miles, many extras, 14 mos. guaranty left, \$1,795. 213-372-1013. A

Chevelle, 1967, 396, 4-spd., \$2,200. 213-523-7632. A

Dune Buggy, 1958 V.W. chassis w/rebilt. 36 to 40 h.p. eng., \$550. 213-375-4558. A

Corvair, 1962 Monza, 2-dr. coupe, 4-spd. stick, high torque axle, \$200. 213-541-1625. A

Plymouth, 1963 Fury, 2-dr. h/top, r/h, 383 cu. in., \$1,000. 213-326-6657. A

Ford, 1968 Fairlane, 2-dr., V-8, r/h, p/s, auto., 8,000 mi., \$2,245. 213-375-3953. A

VW Camper, 1966 Sun Dial, lge. lug. rack, \$1,995. 213-371-0127. A

Truck & Camper, 1969 Ford, \$2,695 or 8' camper, \$595. 213-327-9044. A

Automobiles For Sale

Mercury, 1962 Comet, \$400. 213-755-7166. A

Mustang, 1966 fastback, V-8, auto. trans., p/s, p/b, r/h, \$1,650. 213-324-7636. A

Household Items For Sale

Cedar Chest, Lane, walnut w/black uphol. top, \$70. 213-644-8543. B

Recliner Chair, cherry, \$65. 213-345-3634. B

Table, Danish modern, rosewood, dropleaf, 28"x56" open, \$50. 213-631-6480. B

Crib, \$8. 213-675-7732. B

Range, Wedgewood Holly, gas, 28 3/4" 4-burner, broiler & storage, w/refrigerator, Admiral, \$100. 213-324-4507. B

Sectional, modern 3-pc., other furniture, \$60. 213-931-2504. B

Range, Wedgewood, 4-burner, center grill, \$75. 213-379-2980. B

Sofa, 6', contemporary style, \$35. 213-672-5545. B

Youth Bed, Edison birch, Kantwet mattress, bedding, will deliver, \$25. 213-323-8089. B

End Table, walnut, contemporary style, 2-drwr., \$20 ea. 213-541-3000. B

Crib & matching chifforobe, walnut, \$75. 213-675-5679. B

Living Room Furniture, complete, \$54. 213-323-9887. B

Washer, G.E. Filter-Flo, auto., \$25. 213-676-9385. B

Refrigerator, Coldspot, \$35. 213-423-2901. B

Stove, gas, timer & clock, \$60. 213-323-9153. B

Dining Room Set, blonde wood, 6 chairs, china cabinet & buffet, \$75. 213-675-6493. B

Freezer, Coldspot, 17' chest w/fast freeze & 2 baskets, 3 yrs. old, \$125. 213-323-6366. B

Sofa, white naugahyde, 5', \$50. 213-674-5909. B

Refrigerator, \$50. 213-671-1966. B

Desk-chair sets, child's, metal w/formica tops, 2 storage shelves w/door encl., \$10. set. 213-376-3533. B

Washer, G.E. Filter-flow, auto., \$25. 213-754-7947. B

Dining Table Set, white formica, modern chairs in blue & green pattern, \$70. 213-542-2537. B

Crib, mattress, \$25. Box 1501. B

Washing Machine, Frigidaire, 3-cycle, \$150. 714-735-0423. B

Bed, dble., new frame, innerspring, \$30. 213-370-7946. B

Refrigerator, Frigidaire, coppertone, \$85. 213-670-3835. B

Sofa, antique white, 3-pc. sectional, approx. 14', corner table incl., \$250. 213-832-3502. B

Sewing Machine, portable Singer, \$25. 213-830-7268. B

Stove, gas, \$15. 213-321-1655. B

Coffee & step table, cherry wood, parquet top, country provincial, \$35 ea. 213-372-1632. B

Sewing Machine, White, in stand, \$20. 213-323-5931. B

High Chair, Cosco, chrome, \$12. 213-324-4817. B

Miscellaneous For Sale

Beer Tap unit for refrigerator, CO2 bottle & ga., \$20. 213-377-3487. C

Boat, 15', glass hull, 50 h.p. Mercury outboard, trailer, \$839. 213-421-7029. C

Air Conditioner, Fedders, 7,700 B.T.U., minute mount window-type w/thermo. control, \$75. 213-534-0280. C

Pump Organ, Weaver, converted elec., walnut cabinet, 15 stops, \$400. 213-326-1631. C

Acreage, Antelope Valley, 2 1/2 acres, 10 miles east of Mojave off Hwy. 466, 10% dn., \$2,750. 805-495-3850. C

Bird, toucan, w/cage, \$50. 213-675-1354. C

Accordian, Universal, 120-bass, white pearl finish w/gold speckle trim, \$50. 213-838-6747. C

Engine, 1 h.p., for bicycle, \$55. 213-677-6348. C

Radio & record player, comb., console, AM-FM Olympic, \$150. 213-324-0274. C

Motorcycle, 1964 James Cotswold, 250 cc, Cerani front end, many extras, \$400. 213-833-4667. C

TV, 21" b&w, w/stand, 6 mos. old w/clock radio, AM-FM, mahogany, \$150. 213-938-5373. C

Transmission, rebuilt 1957 Chev., \$70. 213-633-1717. C

Surfboard, 9'4" Harbour Rapier, \$80. 213-833-4809. C

Motorcycle, 1967 Bultaco Lobito, 100 cc, \$350. 213-323-6737. C

Radio, Zenith 3000, 9-band, portable, \$135. 213-899-7373. C

Transmission, for T-90 Jeep, \$100. Box 1502. C

Cemetery Lot, single, Park View, Inglewood Cemetery, \$450. 213-753-7484. C

Pups, weimaraner, AKC, 4 mos. old, \$80. Box 1503. C

Socket Set w/case, \$10. 213-754-1089. C

Magazine & catalog, IRE Proceedings & Electronics, back issues, \$8.50. 213-378-1863. C

Slot Car outfit, extra lge. course, misc. parts, \$50. 805-498-3305. C

Wig, blonde, styled, \$40. 213-674-8997. C

Drafting Table, deluxe model Fred Post, incl. stool, lamp, \$200. 213-370-8660. C

Top, Gem for 1967 El Camino, tinted windows, \$200. 714-879-6537. C

Acreage, Lake Havasu City, Ariz., view, \$6,500. 213-644-7574. C

Motorcycle, Triumph, 1968, Daytona 500, many extras, \$850. 213-329-6969. C

Miscellaneous For Sale

Mail Trucks, 2 3-wheel Cushman, 18 h.p., twin cyl., gas eng., \$100 ea. or \$175. 213-327-2939. C

Duplex, 2-bdrm., new cpts., disp., fenced back yd., det. gars, pvt. parking area, 3 mi. from Aircraft Div., lease w/option to buy or \$26,000. 213-370-3011. C

Trailer, 26', Newport Bch., completely furn., covered cabana & pvt. patio, adults only, lease \$98 mo. & min. util., \$3,950. 805-495-8166. C

Bathroom Sink, w/faucets attached, white, \$10. 213-423-1363. C

Stereo Console, Philippine mahogany, AM-FM w/record player, \$50. 213-833-8436. C

Travel Trailer, 13' 1965 Cardinal, sleeps 5 or 6, butane stove & lights, \$650. 714-544-5964. C

Motorcycle, 1965 Mustang trail machine, many extras, \$275. 213-867-5809. C

Pups, Great Danes, male, fawn, \$150. 213-752-2717. C

Wheelchair, \$25. 213-293-7581. C

Hubcaps, 4 brand new 15" Buick wire whl. covers, \$35. 213-371-4814. C

Surfboard, 9'9" Jacobs, \$35. 213-754-3665. C

Pups, purebred, German shorthair, \$50. 213-756-0638. C

Organ, Wurlitzer Spinnet, Model 4040, Mahogany, incl. bench, \$600. 213-679-6247. C

Guitar, Crown elec., \$30. 213-423-5690. C

Transceiver, Eico 753, power supply, mike, 20 meter short-beam, \$40. 714-639-4438. C

Motorcycle, 1967 Honda Super Hawk 305, \$300. 213-842-6575. C

Piano, Iver & Pond, walnut console, w/bench, \$495. 213-755-1071. C

Surfboard, \$30. 213-377-2160. C

Cabin Tent, 9' x 12', \$20. 213-676-7109. C

Welding Outfit, gas, portable, \$125. 213-675-5258. C

Cemetery Lots, 2 dble., Inglewood Park Cemetery, El Portal Sec., \$540 ea. or \$1,050 for both. 213-324-5709. C

TV, 21" Magnavox, UHF converter, \$20. 213-833-5594. C

Utility Trailer, 6' x 4' x 2', 2-wheel, \$35. 213-327-0883. C

Units, 6, room for 6 more, will carry mortgage, \$59,500. 213-675-1776. C

Surfboard, 6'6", Rick, W.A.V.E., set fin, \$90. 213-377-4180. C

Traction Equipment, for neck, back or pelvis, \$65. 213-882-0761. C

Camping Trailer, 13', sleeps 4, w/side view mirrors, hitch, chemical toilet, \$750. 213-830-5284. C

Piano, mahogany, full keyboard, spinet style, \$450. 213-324-3690. C

Guitar, Rickenbacker, deluxe hollow body, 3 dual pickups, \$295. 213-474-5682. C

Cabin Cruiser, 30', S. to S. radio, stove, sleeps 2, \$1,500. 213-751-6250. C

Guitar, bass, Gagliano, 3 mos. old, \$100. 714-943-1811. C

Executive Home, 5-bdrm., 3 baths, radio-controlled gar. dr. opener, remote controlled living rm. dps., landscaped w/sprinklers, AM-FM intercom, many more extras, in Marble Estates, Torrance, \$54,500. 213-327-1975. C

Watch, ladies, w/40 diamond band, \$100. 213-837-8276. C

Water Softener, Eversoft, used 6 mos., \$200. 213-833-2161. C

Amplifier, Standel Artist 12, 8 mos. old, reverb & tremolo, \$295. 213-474-5682. C

Catamaran, 13', w/trailer, fiberglass o/plywood, 20' mast, 80 sq. ft. sail area, \$150. 805-648-2407. C

Top, fits '61 or '62 Corvette, dull gold color, \$75. 213-372-8618. C

Sign, plastic faced, illuminated sign, 3'x9' 3 mos. old, \$200. 213-375-9397, 213-375-2091. C

Travel Trailer, 20' 1969 Aristocrat, self-contained, used 6 mos., \$2,700. 714-839-3579, 714-524-1753. C

Ski Boat, 14' w/45 h.p. Merc., lge. wheel trailer, skis, rope, \$495. 213-374-5877. C

Boat, 18' Miller, fully equip., trailer, 2 engs., access., \$2,750. 213-370-3853. C

Pups, miniature Dachshund, AKC, show b/ground, \$75. 213-377-7392. C

Boat, 15' Lone Star, 5' beam w/75 h.p. Evinrude outbd. motor, \$745. 213-672-1716. C

Rifle, sporterized Springfield, 30-06 checkered stock w/Weaver K4 scope, \$135. 213-329-5696. C

Travel Trailer, 21' Kencraft, self-contained, full awning & sides, \$1,050. 714-737-1829. C

Swimming Pool, Sears & Roebuck, 24'x4', all access., \$150. 213-633-3993. C

Acreage, 10 level acres, 50 minutes from Hawthorne, \$600 dn., \$120 mo., \$12,000. 714-846-2244. C

Ladder, 24' ext., alum., \$32. 213-377-5907. C

Mynah Bird, & cage, \$50. 213-759-0493. C

Home, 3-bdrm., paneled fam. rm., 2 f/places, 1 1/4 bath, cpts., dps., d/washer, near park, 5 min. to Hawthorne facility, will G.I., \$28,500. 213-323-0653. C

Air Conditioner, for auto, \$50. 213-881-2604. C

Pups, grey mini poodle, 5 mos. old, all shots, \$50. 213-375-5888. C

Golf Clubs, ladies, 3 woods, refinished, 8 irons, bag, head covers, \$50. 213-860-7973. C

Rock Collection, w/lighted case & glass shelves, \$50. 213-327-2087. C

Record Player, stereo, portable, \$45. 213-373-3128. C

Motorcycle, 1966 Yamaha, 305 cc, \$400. 213-545-3521. C

Miscellaneous For Sale

Wet Suit, full Dive-N-Surf, \$35. 213-328-0460. C

Guitar, 1969 Les Paul, 2 mos. old w/hard-shell case, \$350. 213-377-7670. C

Ski Boat, 14' & trailer, 110 h.p., Ford V-8 eng., fibreglass over wood, \$995. 213-248-8355. C

Motorcycle, 1969, Honda Mosport SL 90, 640 mi., \$350. 213-672-0203. C

Socket Set, 14-pc., 3/8" drive; 23-pc. 1/4", 12-pc. 1/4" hex drive; 29-pc. 10-32 mm 1/2" drive metric, \$50. 213-545-6719. C

Top, soft, w/glass window, fits '61-64 Ford, \$25. 213-679-7840. C

Slip Lot, Salton Sea, lot for house & sep. boat dock on channel, roads & util. in, near yacht club, \$7,100. 714-535-1694. C

Wanted To Buy

Vehicle, 4-wheel drive. 213-675-6186. D

Rifle, model 92 Winchester, 44-40 cal., reasonable. 213-323-4257. D

Trailer, for Cal 20, reasonable. 714-893-3292. D

Playhouse, child's, outdoor type. 714-528-3758. D

For Trade

TV set, 21" Packard-Bell b&w, maple cabinet, trade for 35mm slide projector. 213-679-6982. E

Free (To Be Given Away)

Dog, female, part toy fox terrier. 213-374-5133. F

Dog, English bulldog, male, 7 yrs. old. 213-670-4702. F

Dogs, German Shepherd, 2-yr-old female & 5-mo.-old male, had shots. 213-333-3565. F

Kittens, 6 wks. old, 1 female tiger; 1 gray male; 2 black & white males. 213-377-1094. G

Rentals Offered

House, 3-bdrm., btlins, lge. dble. gar., covered patio, dps., cpts., 5 miles to Elec. Mech. Anaheim, lease, \$195. 714-828-2505, 714-772-0150. G

Apt, to share, furn., cpts., dps., fully equipped kitchen, close to Aircraft, swim. pool, carports, avail. after Aug. 18, \$58.50 mo. 213-644-9087. G

Cabin, Green Valley, sleeps 6, \$30 w/end, \$60 wk. 213-324-9769. G

Apt, 2-bdrm., cpts., dps., btlins, carport/storage area, unfurn., \$140. 213-675-1537. G

Cabin, 4-bdrm., Aug. & Sept., Lake Arrowhead woods, 2 baths, sleeps 8, \$150 wk. 213-454-5927, 714-337-4621. G

Studio Apt, 3-bdrm., f/place, 2 1/2 baths, f/a heat, btlins, cpts., dps., no pets, close to Northrop Haw., avail. Aug. 15, \$250. 213-676-5425. G

Apt, 2-bdrm., unfurn., cpts., btlins, carport, 1 child o.k., no pets, close to Northrop, \$140. 213-676-7423. G

Room w/pvt. entrance & bath, kitchen privileges, \$17.50 wk. 213-755-5164. G

House, 3-bdrm., furn. or unfurn., corner lot, Gardena area, \$250 mo. 213-831-1745. G

Rentals Wanted

Home, 3-bdrm., unfurn., for family of 4, So. Bay area. 213-370-7092. H

Cabin, for 6-8, vicinity of Idyllwild or Big Bear, Dec. 29 to Jan 2. 213-541-1294. H

Rides and Riders

Rides Wanted

4:12 p.m. — 12:42 a.m.

El Segundo & Normandie, Los Angeles. Rose Herron, Aircraft, ext. 5042. 213-374-3665.

7 a.m. — 3:43 p.m.

Newbury Park or Thousand Oaks, Newbury Park, Rochelle D. Licata, Mariposa, ext. 6211, 805-498-1235.

8 a.m. — 4:45 p.m.

Lakewood Blvd. & Imperial Blvd., Downey. Morris Brown, Aircraft ext. 5121, 213-861-8508.

Rentals Wanted

Sleeping Room for older, reliable man, Aircraft plant area. 213-370-9384. H

House, 2-bdrm., gar. or place for camper & truck, Inglewood or Hawthorne vicinity, from \$125 to \$150. Box 1504. H

Child Care

Child Care wanted, in home, Torrance area. 213-372-2746. I

Personals

We wish to express our sincere gratitude & appreciation for the sympathy & kindness extended to us by his Northrop friends, upon the recent loss of our husband & father, Orville D. Brewer. MRS. TWILA BREWER & FAMILY. L

I wish to express my sincere thanks & appreciation for the kindness & expressions of sympathy in the loss of my husband. HELEN GROGAN. L

I wish to thank all my friends & co-workers for their kindness & thoughtful expressions of sympathy to myself & family in my time of need. OLLIE DELFS & FAMILY. L

My sincere thanks & appreciation to all our friends at Northrop for the kind expressions of sympathy in the loss of my husband, Joe. MILDRED BRANZETTI. L

For Sale or Trade

Home, 1-bdrm., sleeping porch, in Kernville, Lake Isabella, 1/2 block from center of town, \$14,950 or trade for home in Torrance area. 213-679-8054. M

Volkswagen, 1967 1600 Variant Squareback sedan, r/h, new tires, \$1,695 or trade for late model pickup with or w/out camper. 714-523-2495. M

Jaguar, 1960, trans. & eng. just o/hauled, \$1,300 or trade for V.W. 213-291-2562. M

Triumph, 1966 Spitfire, wire whls., \$1,045, or trade for older pickup or station wagon. 213-672-4231. M

Coin Collection, United States & foreign, \$75 or trade for small boat or guns. Box 1506. M

GOLF CLUB

Aircraft Division golfers will tee off the morning of August 23 at the Lake San Marcos Country Club for the monthly NRC Golf Tournament.

Harold Weller, golf commissioner, noted that excellent accommodations are available.

NORTHROP NEWS

Vol. 27

New Training Administrator Appointed to Serve Division

Thomas P. Brady has been appointed training administrator for the Electro-Mechanical Division.



Mr. Brady

Mr. Brady is a graduate of Cornell University with a degree in Industrial and Labor Relations and recently received his master's degree in business economics from Claremont Graduate School. He

joined Northrop in August 1968 and was responsible for Industrial Relations special projects before his new appointment.

He replaces Richard M. Greene, Jr., who has transferred to the Electronics Division where he will be chief of Personnel Planning and Development.

TEST SITE CREW BAGS RATTLER

The continuing story of Electro-Mechanical personnel vs. rattlesnakes has another chapter.

Larry Law, technician, has killed a 5-foot rattler on the Electro-Mechanical Division's remote test site in the rugged hills near Riverside.

However, Mr. Law's snake is only the second largest kill this year. This spring, a five-and-a-half foot snake was bagged by test personnel.

In this age of complex weapons systems, test personnel say they have found an amazingly simple solution to the snake problem: a rock aimed squarely at the snake's head.

APOLLO

(Continued from page 1)

are in their original moon environment condition when tested and are not contaminated by earth conditions.

Preparing moon rocks for scientific analyses is only one of the duties performed for the Apollo program by members of Brown and Root-Northrop. A wide variety of tests are being performed. Brown and Root-Northrop is also responsible for service to the astronauts while they are in quarantine. Eleven Brown and Root-Northrop personnel were originally quarantined with the three astronauts. Six others joined them later after they were accidentally exposed to the moon rocks. Their quarantine was precautionary only.

EARNING NORTHROP PATENT AWARD



JACK SACKS, second from right, receives Corporate Patent Award Certificate from Frank W. Lynch, vice president and general manager, Electro-Mechanical Division. Mr. Sacks received the award for an invention related to Electro-Optical systems. Looking on are Dr. William B. Simecka, manager of Tactical Systems department, left, and Stan Ecklund, who contributed to the invention.

COMPUTER — Program Pattern Is Forerunner to Artificial Intelligence

(Continued from page 1)

thing unknown with data in memory. Features of the unknown pattern are automatically compared or matched against memorized features. The best match is selected to identify to the unknown pattern."

Input-output measurements on a piece of equipment may be all the information the test engineer possesses to determine malfunctions. This is often the case in machinery, integrated circuits, and other "black box" situations. These measurements form a complex test pattern, which only a highly trained technician may be able to interpret.

In the military services highly trained technicians are in short supply. This is why computer programs have been developed which, together with signal con-

ditioners (or feature extractors), automatic test pattern interpretation.

Experiments have been conducted so far on vibration signals from rotating machinery. A damaged ball bearing, for example, has a characteristic frequency spectrum. The computer is able to differentiate this characteristic from the pattern of normal machinery or from other malfunctions.

The U.S. Navy, Automation Systems' prime customer, has expressed great interest in this research. "We consider pattern recognition applications one of our most promising projects," Art DeBolt, Development group supervisor, said. "Our research results also open the door to several applications in the field of industrial automation."

NRC Calendar

For information on NRC activities from August 13 to August 27, call Personnel Activities, ext. 244, or contact individual club commissioners. All meetings are held in the NRC Clubhouse, 1834 Valencia, Fullerton, unless otherwise noted.

ART—Meets every Wednesday at 7:30. Live model will be available for sketching and painting on August 20. Non-professionals welcome. Call Ed Mosher at ext. 1184.

BIBLE—Mondays, Wednesdays and Fridays, 11 p.m. Conference Room, Y-1 for Orangethorpe people; and Tuesdays and Thursdays, Y-41, conference room, Page Court. Presently studying the Book of Acts.

BOWLING—Tuesdays at 6:30 Carter Bowl. Now seeking entrants for beginning September league.

CAMERA—Meetings on Tuesdays. Club is now experimenting with developing color films. Darkroom available.

COIN—Next regular meeting will be September 9.

DESERT RATS—Inactive until cooler weather.

GOLF—August tournament set for Shorecliff Country Club, San Clemente, on August 16. Tee-off is at 7 a.m.

GUN—Officers meeting on August 20 will discuss upcoming novelty meet.

POCKET BILLIARDS—Will begin new tournament September 10 and is seeking entrants now.

TRAVEL—European trip leaves September 20.

RADIO—Meets daily at lunchtime in the ham shack; conducting continuing code classes. Beginners enthusiastically welcome.

TABLE TENNIS—Daily at noon in cafeteria area.

SOFTBALL—Season due to close soon.

DR. SIMECKA

(Continued from page 1)

University of California and a master's degree in engineering from UCLA.

In Huntsville, Robert E. Lindstrom has assumed a key role in the Tactical Systems department as manager of the MARS (Multiple Artillery Rocket System) program. Mr. Lindstrom was formerly assistant manager of Northrop's Huntsville facility and for 13 years was with the Army Ballistic Missile Agency and its successor, the NASA Marshall Space Flight Center.

Northrop has a \$468,200 Army contract for a six-month concept formulation study on MARS. A mid-term review of the Northrop study has been completed by a 38-man Army team at Huntsville.

On The Job



ARTHUR CHAVEZ, a seven-and-a-half year veteran with Northrop, machines rings for Northrop Carolina on the vertical turret lathe in the Anaheim department machine shop. His work is an example of the interface and cooperation between widely separated members of the Northrop family.

WINTER LEAGUES NOW FORMING

The NRC Bowling Club is now forming its winter leagues according to Vito De Paul, club commissioner.

The leagues will play at Carter Bowl at 6:15 p.m. on Tuesdays, the commissioner said, and will be composed of mixed fives—three men and two women. There are openings for 20 teams divided into two leagues of 10 teams each.

Interested bowlers may enter as individuals or as complete teams. Those interested are urged to contact either Commissioner De Paul at ext. 443 or Personnel Activities at ext. 244. First games are expected to begin in early September.

SUGGESTIONS

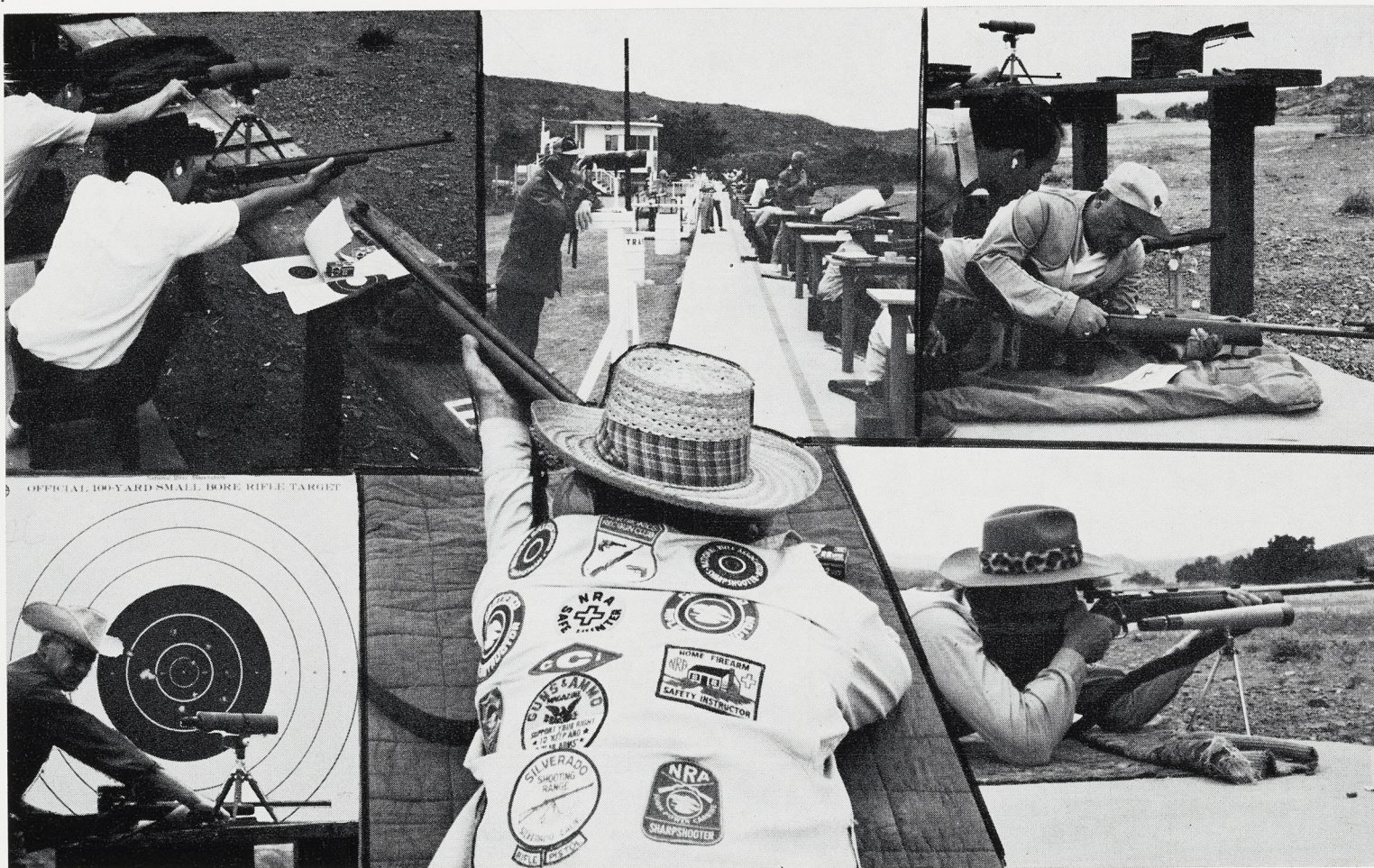
(Continued from page 1)

permits loading stringers from the side of the basket.

In addition there were six awards under \$20. R. H. Miers, Machine Shop, received \$19 for simplifying radius milling; Brint Bjorklund, \$16, for addition of diameter detail to a gage; Walter Judd, \$10, for suggesting use of thermofit type insulating sleeving precut to mask holes for painting on the Hawk Launcher sub-assemblies; and Faye Lantow, \$10, for her suggestion to provide reusable masking caps for painting Hawk assemblies.

Others were George R. Boyd, \$10, who proposed a saw fixture to permit saw cuts to be made without individual markings, and Mac Daniels, \$10, for a proposal to install dust boots over the pedestals of the dye loaders to prevent accumulation of dye.

NRC GUN CLUB ZEROES IN ON TARGETS AT TOURNAMENT



DRAWING A BEAD at the Electro-Mechanical NRC Gun Club shoot at Silverado Sportsman's Range are, top from left, Bob Renstrom and Bill White; center, Mike Szidik checks target with scope; right, Ray Pracht with John Barth, right. Below, Chet Miles with Bert Millspaugh's target in background; center,

Vince Duarte; right, Bert Millspaugh. Chet Miles took first with the High Powered Rifle 100 yards, Bert Millspaugh was first with small bore on the 50 yard range, and Ernie Hill was first with the pistol at 25 yards. (Photos by Charles Fox, commissioner, NRC Gun Club.)

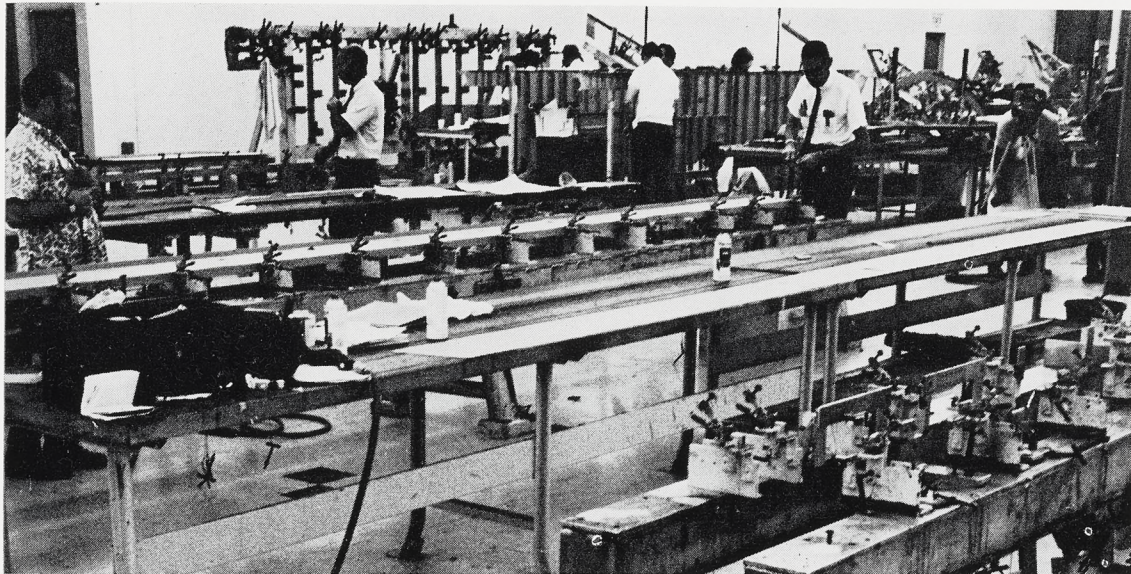
NORTHROP NEWS

ELECTRO-MECHANICAL DIVISION EDITION

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August 27, 1969



BOEING 747 ASSEMBLY AREA
Additional 747 work is now in progress at Electro-Mechanical Division.

POLARIS PROGRAM

Training Is Important Product Line

One of the most important programs of the Automation Systems section is providing training equipment to Polaris Fleet Ballistic Missile (FBM) training centers.

Northrop has delivered more than \$4 million of training equipment to the U. S. Navy under the program. The equipment consists of stimulators, switching devices, panels and accessories.

The stimulators interface with Northrop-developed missile test and readiness equipment (MTRE) and simulate normal and abnormal Polaris missile functions. This allows Navy personnel to simulate mission conditions for training purposes.

C. L. Almich, project engineer, has headed the program since its inception. Design personnel include Milton Tormey, Kenneth Smith, Robert Maze, William Michael, Bruce Mueller, Chet Niles, J. D. Polk, Jr., and Clifton Watkins.

Northrop has provided equipment to FBM training centers at

each of three FBM submarine home ports—New London, Connecticut; Charleston, South Carolina, and Pearl Harbor, Hawaii, as well as the main FBM Guided Missile School at Dam Neck, Virginia. To provide proper training of submarine crews, tactical hardware has been placed in these facilities in configuration that simulate actual submarine conditions.

Two types of training are provided at these facilities: initial training for new personnel and refresher training for experienced crews preparing for sea

duty.

The Electro-Mechanical Division developed training courses and provided instructors to train Naval personnel at the Anaheim facility and the training centers.

The Automation Systems section provided 42 hardware items which include five types of stimulators and four types of switching (interface control) devices.

The reliability of this equipment is demonstrated by the fact that between 1962 and 1969, only seven module failures were reported. These involved discrete component failures on circuit cards. The cards were repaired and returned to service.

The success of this project has led to the division's selection to provide stimulators, switching devices and accessories for use in the United Kingdom's FBM program.

BLOOD BANK CALL COLLECTS 114 PINTS

Electro-Mechanical Division employees donated 114 pints of blood to the Red Cross Blood Bank during the August visit, according to Esther Jones, industrial nurse.

"These contributions will help maintain the Northrop balance in the blood bank," Miss Jones said. "The donations, as usual will be credited both to the account of the individual donors and to the Northrop account. You may draw against either in an emergency."

Miss Jones expressed appreciation to all those who donated to the bank and to those who helped set up facilities for the visit.

LONG WEEKEND FOR LABOR DAY

A three-day weekend is in store for most Northrop employees this week as Northrop facilities suspend operations in observance of Labor Day.

Monday, Sept. 1, is a regular paid holiday. Normal work shifts will resume Sept. 2.

Management Club's Family Night Will Feature Talk by Tom Bade

How to really hear your wife and children and how to have them really hear you will be the subject of a talk by Tom Bade, nationally known authority on family communications, to the combined Electro - Mechanical and Electronics Divisions Management Club.

Mr. Bade's talk will be presented at a special meeting at the Long Beach Elk's Club, Friday, Sept. 12 at 6:30. The talk will be preceded by the regular club dinner.

Mr. Bade has more than 15 years experience in his field and has conducted forums on family

communications across the nation. His talk to the Management Club will be a provocative program with constructive and specific suggestions for improving family communications. He has done considerable work on the problems of young people, and feels that they need understanding and help. He has been especially active in promoting their interest in less spectacular professions, working to bring dignity back to jobs that he describes as "requiring honest sweat."

Club members are invited to make reservations for members of their families and guests for this special program.

More 747 Work Assigned to Anaheim

Additional assembly work for the Boeing 747 jetliner has been transferred from the Aircraft Division's Plant Three to the Electro-Mechanical Division in Anaheim, according to R. D. "Bob" Philbrick, newly named 747 program manager at Anaheim.

The new assembly operation will be performed in the Stringer Production area which also provides support for the 747 program.

Specific additional operations assigned to Anaheim are:

- Fuselage panel frame members
- Floor beams
- Miscellaneous Items

Operations at first will be limited to assembly only. However, plans call for transfer of fabrication and material procurement support of assembly operations

on a progressive basis.

The Electro-Mechanical Division's increasing involvement in the Boeing 747 program resulted in the appointment of Mr. Philbrick as program manager for the 747 program at Anaheim.

Mr. Philbrick has been with Northrop since 1946. He brings to this assignment a vast knowledge of the company and its products. During his employment with Northrop, Mr. Philbrick has held a number of significant assignments, including supervisor, Engineering Administration; resident representative, Raytheon; chief, NATO Hawk program; and most recently, chief, Contract Administration and assistant to the manager of Finance.

Production of the subassembly work will be under D. A. Niccole, chief, Stringer and Production group.

DUDES PREPARE FOR 'WESTWARD HO' TRIP

The cry is "Westward Ho!" in the NRC Travel Club with dudes and waddies alike preparing to hit the saddle for the fall trek to Las Vegas.

"In exchange for your \$31.90 per person tab, you get three days and two nights at the Westward Ho motel on the strip," said Randy Lee, tour coordinator. "Also to sweeten the pot, there will be free events, souvenirs and services at the Aladdin, California Club, Mint, Nevada Club and Caesar's Palace, plus a special bonus package at the Silver Slipper."

The tour will depart Northrop Anaheim at 6:30 p.m., October 17 arriving in Las Vegas at 11:45 via deluxe Greyhound bus. The return trip leaves Las Vegas at 1 p.m. and arrives home at 7 p.m. Parking will be available in the company lot.

Reservations must be made by October 10. There is a \$15 reservation deposit. Call ext. 244 for details. Page Court personnel may call Leo Parsons at ext. 16.

Bricken Delivers Patriotic Poem Aboard Battleship

Gordon Bricken, senior systems engineer with Automation Systems, recently delivered a reading of his patriotic poem, "The Long, Long Line" during the memorial services held at the reunion of the First Marine Division.

The reading was given aboard the USS New Jersey in Long Beach Harbor. The New Jersey is the only battleship in active service in the world.

The poem takes note of pessimism in America today and retraces the nation's history and the sacrifices of its armed services to show that men have risen to meet every challenge in the past.

The poem originally was written four years ago and entered in a Toastmasters speech contest. Its success was so phenomenal that Mr. Bricken has delivered it on invitation at least 50 times since then. It was the first and only poem he ever wrote.

On The Job



JUDY DRURY, an electronics assembler in the Electro-Mechanical Division Polaris Support Depot, changes a relay in a power supply unit. Judy has been with Northrop for two years. The Polaris Support Depot has been in operation to support the U.S. Navy Polaris program for seven years.



A VISIT TO BATTLESHIP NEW JERSEY
Gordon Bricken is shown about by Captain Snyder.

Old Memories Revived by 27-Year-Old Newspaper

A 27-year-old newspaper, found lining a forgotten toy box by George Matuskey, revived old memories for Elman Schwarz.

Mr. Matuskey, an employment representative with the Aircraft Division, found the paper while on vacation when he was looking through a toy box he had as a child. It was the society page for the Los Angeles Times of Sept. 6, 1942. A picture and story caught his attention. It was about members of Theta-Xi fraternity at USC entertaining some soldiers who had been studying meteorology at the University before going overseas.

Idly wondering what might have become of these men in the more than quarter century since the paper was published, his eye was caught by what looked like a familiar name: Elman Schwarz, Engineering Personnel administrator on loan to the Electronics Division.

A phone call verified that it was the same Elman Schwarz and he recalled the incident although he had not seen the paper since 1942. He was able to identify most of those in the picture and recalled that one is now a prominent Los Angeles physician, another is associated with the U.S. State Department, one is an attorney, another is assistant dean of a college and the other he recalled is a real estate broker. He

intends to copy the clipping and send each one a copy.

Northrop Starts Program to Save Retirees Time

Still another time-saving and red tape-cutting procedure is now available for Northrop retirees. Retirement counselors now provide Social Security and Medicare applications.

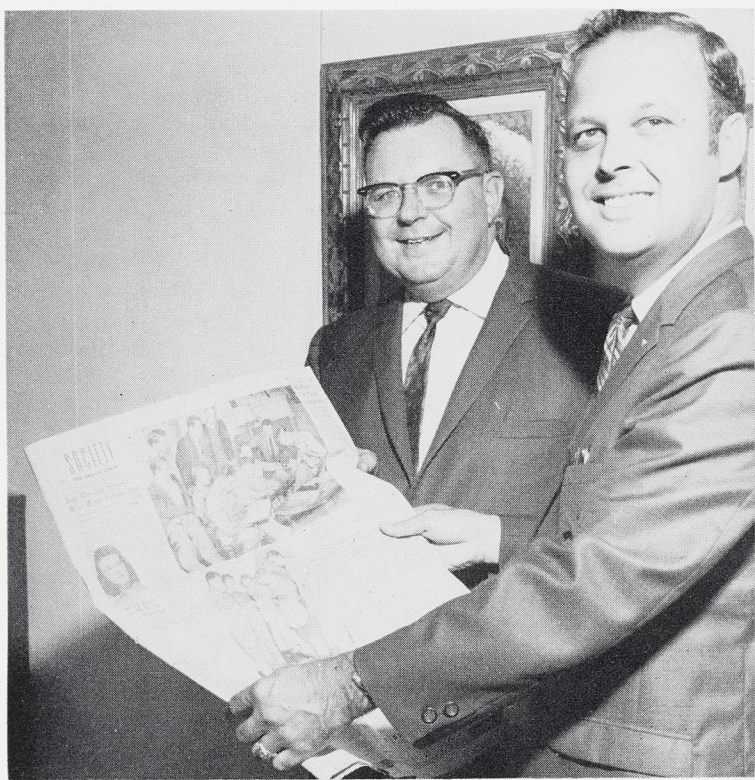
With the forms available in the plant, employees won't have to set foot in a Social Security office. By filling out the form and having retirement counselors simultaneously supply information necessary for proper benefits, personnel will receive the benefits more quickly.

The retiree is thus protected against the loss of cash or Medicare benefits resulting from delay in filing the applications.

WINS HONORS

Wallace Henrich, on military leave from Aerosciences Laboratory, Aircraft Division, has won the 4780th Air Force Supply Squadron's Zero Defects Man of the Month award for June.

Sergeant Henrich's work helped his unit earn the Flying Safety Plaque as the 4780th flew 80,000 accident-free hours over a 24-month period.



A PAGE FROM THE PAST

Elman Schwarz, left, and George Matuskey with 27-year-old newspaper about Mr. Schwarz.

Brown & Root-Northrop Employee Delivers Sermon to LRL Occupants

A Brown and Root-Northrop man, in quarantine with the lunar astronauts, conducted religious services for Neil A. Armstrong and BRN technicians inside the Lunar Receiving Laboratory.

He is Jesse Stewart, employed by Brown and Root-Northrop as a technician in the laboratory. Mr. Stewart, who is a deacon in the New Hope Baptist Church, Houston, read from the Bible and delivered a short sermon.

After the services, Mr. Armstrong signed Stewart's Bible and told him, "I enjoyed your sermon, deacon. Thank you very much."

Mr. Stewart is a retired Navy

man who has been with Brown and Root-Northrop since 1967. He was one of the original nine technicians quarantined with the astronauts. The group left quarantine on August 11.

'FOLLIES' DUCATS

The Aircraft Division's Personnel Activities office has acquired a block of tickets for the 5 p.m. Sept. 20 presentation of Ice Follies at The Forum.

Through NRC-sponsorship, regular \$5 reserved seats are available at \$4 each; junior tickets (16 years and under) are available at \$2.50 each.

Northrop's Aid To Scouting



NORTHROP CORPORATION is underwriting the cost of dies to make a new emblem honoring the fathers of Boy Scouts who attain the Eagle rank. "Eagle Dad" lapel emblems will go to the dads of the two per cent of all Scouts who attain this rank. James V. Holcombe, right, vice president and manager—Eastern Regional office, presents check for dies to Joseph E. Barber, chairman of the Eagle Board of Review of Washington, D.C. Looking on is J. Howard Kautz, Scout executive, National Capitol Area Council.

NASA Announces Names of Crews for Apollo 13, 14

Veteran spacemen James A. Lovell, Jr. and Alan B. Shepard, Jr. will command Apollo 13 and 14 crews, respectively, on their voyages to the moon, NASA has announced.

Prime crewmen with Mr. Lovell in Apollo 13 will be Thomas K. Mattingly, II, command module pilot and Fred W. Haise, Jr., lunar module pilot.

Apollo 14 prime crewmen, with Mr. Shepard, will be Stuart A. Roosa, command module pi-

lot and Edgar D. Mitchell, lunar module pilot.

Backup crewmen for Apollo 13 are John W. Young, John L. Swigert, Jr. and Charles M. Duke, Jr. Apollo 14 backup crew is composed of Eugene A. Cernan, Ronald E. Evans and Joe H. Engle.

NASA previously announced that Apollo 12, scheduled for launch Nov. 14, will be crewed by Charles Conrad, Jr., Richard F. Gordon, Jr. and Alan L. Bean.

AEROSPACE TECHNOLOGY

Dr. Andrew Makes Many Contributions

A means of prolonging the structural life of high-performance aircraft is one of many contributions to the advancement of aerospace technology attributed to Northrop's Dr. Gustav Andrew.

A veteran of aerospace research work, Dr. Andrew is presently principal investigator on transonic supercritical wing design and testing for the Aircraft Division's Research and Technology department.

Dr. Andrew is credited with the invention of a patented system to suppress aeroelastic vibration in high-speed aircraft, a system already flight-proven aboard the B-70 and now being considered for use on other advanced aircraft.

The slender body structure of supersonic aircraft deflects or bends in disturbed air. Constant flexing leads to metal fatigue, restricting the structure's useful lifespan.

This system utilizes sensors which are placed on selected body structure points. In flight, they detect the beginning of deflections and relay the information to the airplane's autopilot. The autopilot actuates control surfaces to counteract the movement. Thus, one force balances the other.

In addition to limiting structural fatigue with resulting longer lifespan, the system adds to the ride comfort.

Since coming to the United

States in 1944, Dr. Andrew has centered his engineering activities mainly in flight controls and guidance fields.

He joined Northrop in 1962 after working at Convair, Ryan, North American Rockwell and the Air Force Flight Test Center, Edwards AFB.

In his native Poland, Dr. Andrew was general manager of an aircraft factory in Poznan, a full professor at the Institute of Technology in Warsaw and a long-time chairman of the Polish NACA, supervising the work of more than 1,000 technical personnel.

Dr. Andrew has written more than 90 papers and articles published in Polish, French, German and English, as well as several handbooks (in Polish) on aerodynamics and airplane design.

To list the many firsts and special contributions Dr. Andrew is credited with is all but impossible. However, it is noteworthy that they cover a wide range of engineering and scientific fields, from flight controls to performance, general aerodynamics to data acquisition and utilization, physics and space-related work to advanced designs.



HELPING ADVANCE AEROSPACE TECHNOLOGY
Northrop's Dr. Gustav Andrew has made many contributions in the field of aerospace research.

R.P. Cooley New Director Of Northrop

Richard P. Cooley has been elected a director of Northrop Corporation, Thomas V. Jones, Northrop president, has announced.

Mr. Cooley is president and chief executive officer of Wells Fargo and Company, San Francisco holding company of Wells Fargo Bank, N.A.

Mr. Cooley joined Wells Fargo Bank as an assistant vice president in 1949 and progressively held positions as an officer until being named to his present position in November 1968.

Mr. Cooley is a graduate of Yale University, a member of the Board of Regents of the University of San Francisco, and a member of the Advisory Council of the Stanford University Graduate School of Business.



NEW DIRECTOR
Richard P. Cooley, Wells Fargo and Company president and chief executive, has been elected a director of Northrop Corporation.

WITH SPEEDY MUSTANG

Maverick Drag Racer Nearing Record

Fred Harvey is soft-spoken and easy-going until he gets behind the wheel of his car. Then, for a little more than 11 seconds, he becomes a maverick driving a Ford Mustang.

Mr. Harvey, an Electronics Division parts requirement analyst for Special Projects, is a drag racer. He's a maverick because he is one of the few independent drivers competing in the National Hot Rod Association super-stock class without formal backing from any manufacturer or dealer.

Fred's car is a 1968 Mustang Cobra Jet, one of only 50 produced by the Ford Motor Com-

pany. When he bought the car last year it was rated at 335 horsepower. Today its 428 cubic inch engine produces 563 horsepower on one four-barrel carburetor.

The best elapsed time he has had through the quarter-mile strip thus far is 11.37 seconds and 122.47 miles per hour, which is only six-hundredths of a second off the national record.

"My Mustang is basically a stock car," Fred said, "except for changing the cam shaft, ignition, suspension and installing forged aluminum pistons."

"Most of the added horsepower comes from my blueprinting

the engine. This entails taking the engine apart and going through it completely to bring every component up to exact factory specifications," he explained.

"The end result of this is that wear and abuse on the engine during the quarter-mile run is spread evenly over each component, thus giving me maximum performance from every moving part."

Although he has won some prize money competing at local drag strips, Mr. Harvey said, "financially, things can really get tough for the independent driver."

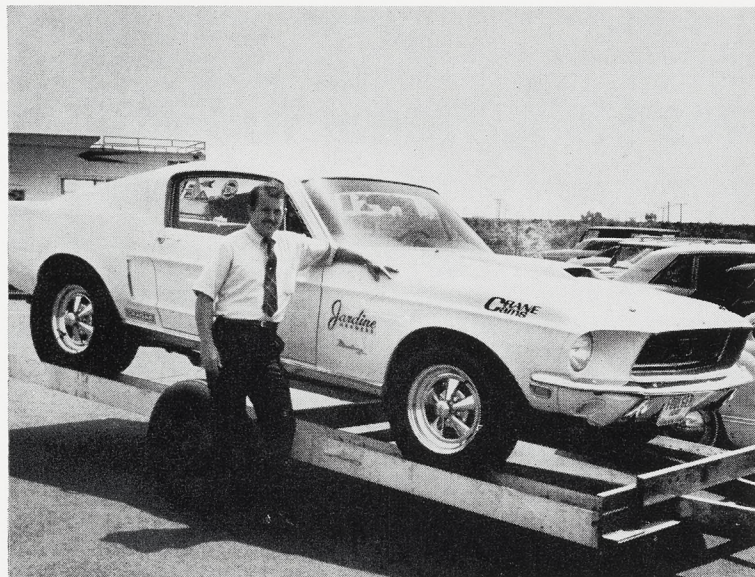
As an example, he mentioned that he was out of competition for nearly two months earlier this year because he couldn't raise the \$175 needed to replace his car's differential.

Mr. Harvey hopes to get back his \$8,500 investment by winning any one of four national drag racing meets sponsored by the NHRA which are worth about \$9,000 to the winner.

"A win at one of these meets would return the money I have already spent and, hopefully, get me some backing from a dealer or manufacturer."

In the meantime, Mr. Harvey plans to continue hauling his Mustang to races with his 1956 Ford, which has 129,000 miles on it and cost \$50.

Like he said, "... things are really tough for the independent driver."



125 MPH MUSTANG
Fred Harvey with his super stock Mustang.

Hank Crowell Has Half Century as Cycle Rider

Rolling his own cigaret in waxy yellow paper, Hank Crowell tells you how it is to ride and live motorcycles for 50 years.

A welder for 20 years with the Aircraft Division, Mr. Crowell is retiring Friday. On his last day, he still will commute to

Mr. Crowell doesn't "scramble," riding in rough terrain and up hills at high speed. He says, "Let the younger guys do that. When you get to be 65, you won't feel like it either."

Yet, he does indulge in some other strenuous activities besides riding his bike at speeds up to 90 miles per hour. He is an auxiliary policeman in Inglewood and he also rides a unicycle at home.

He plans to continue his motor and unicycling in Oregon where he will spend his retirement. He says he's looking forward to trail riding with one of his sons who lives there.

"It's hard for me to keep up with him on the trails," he says, puffing on his cigaret. The smile on his face makes you wonder if it isn't the other way around.



CIRCA 1930
Hank Crowell and sister, Ollie, 38 years ago.

work by motorcycle (his latest is a 1962 Matchless 750 cc "bike") as he has for seven years.

At 65, Mr. Crowell enjoys every facet of motorcycle riding. He likes the speed of riding; he used to own 200 cc bikes "but they weren't powerful enough." He likes the mechanical side, too; he was a motorcycle mechanic for 28 years.

ACCORDION STANDOUT

Michael Lee Dennahower, age 10, has participated in the Western States Accordion Festival which attracted accordion enthusiasts from all over the west.

Michael is the son of Mr. and Mrs. Herman Dennahower. Mrs. Dennahower is a mechanic in the Aircraft Division while Mr. Dennahower is a general foreman on the Forward and Lower Bonnet section in the 747 program.

RETIREE OFFERS BARGAIN HOME

F. W. Edwardy, Jr., has spent 15 years since his retirement from Northrop, building up a "dream" retirement home in Florida.

Now 80 years old, Mr. Edwardy would like to pass it along to some other Northrop retiree to enjoy. He and his wife, who is 77, will go into a nursing home because of their age.

Mr. Edwardy wrote from Florida that he was with the Engineering Test Lab here until he retired in 1954. He moved to Florida where he bought a 16-acre estate with a private lake within a park-like setting of large oaks and other shade trees. There is a six-room ranch style house with many unusual features.

Mr. Edwardy's address is Route 1, Box 208, Caryville, Florida, 32427.



RIDING INTO RETIREMENT
Aircraft Division friends bid adieu to Hank Crowell, a motorcycle rider for more than 50 years who will continue to ride in retirement. (Photo by Livio Castelli)

Honor Medal Recipient



Northrop's Lloyd Millar, right, receives congratulations from Major Tran Thu of the Vietnamese Air Force after receiving Vietnamese Honor Medal First Class. Mr. Millar, a technical representative in Vietnam for one year, is one of few civilians ever to earn this high recognition. Mr. Millar is now stationed at Columbus AFB, Miss. as a Northrop tech rep.

NORTHROP NEWSMAKERS

G. L. Connell and Dr. Y. P. Gupta, Northrop Corporate Laboratories, have co-authored an article titled "On The Optical Absorption Spectra of Several Metal Iodides" for publication in The Journal of Physics and Chemistry of Solids.

D. A. Yerkes and W. G. McCullough, Aircraft Division, have graduated from a one-week course in pneumatics and hydraulics at the Miller Fluid Power Institute.

Ollie Clark Wins Free Trip to Hawaiian Islands

Ollie B. Clark is going to Hawaii—free.

Mrs. Clark will visit the islands next month on an eight-day all expense paid trip she won in a raffle sponsored by the Rinkeydinks, an organization which raises money to help underprivileged children to go to college.



The Rinkeydinks is made up of wives of orchestra musicians. The women work for charitable causes while their husbands are playing on the road. This year the group has raised more than \$30,000 in scholarship money, Mrs. Clark said.

"When the group notified me that I had won the trip I just couldn't believe it. This was the first time I ever won anything."

Mrs. Clark, a Material planner senior at Hawthorne, said her husband will accompany her on the trip.

TRAINING UNDER WAY

Members of the NRC Soccer Club have started their pre-season training every Tuesday and Thursday evening at 6:30, West Torrance High School, Del Amo Blvd.

Any employee interested in joining the team can obtain further information by contacting Norm Jackson, ext. 4437. League play is scheduled to get under way the end of September.

Tom Noble, Ventura, has written a paper on "Unified Simulation of Marine Vehicles" for publication in Marine Technology magazine.

Graveline Girl Named Queen of Festival Ball

Theresa Graveline has been selected Queen of the International Festival Ball, sponsored by the Junior Guild Club of the St. John of God Hospital in Los Angeles.

Theresa, 17, was chosen from more than 25 other contestants. She is the daughter of John Graveline, a technical writer in the Electronics Division Proposals and Publications group.



Miss Graveline

According to Mr. Graveline, the contest and ball has been held annually for the past 13 years to raise funds for the hospital.

As queen, Theresa will receive a free trip to Mexico City and modeling course. She is a junior at St. Mary's Academy, Inglewood, and serves as a cheerleader for Daniel Murphy Boys High School in Beverly Hills.

EMPLOYEES CAN JOIN AUSA

Northrop Corporation employees are eligible to join the Association of the U.S. Army (AUSA).

The association is a private, voluntary, non-profit, educational organization of Americans—civilian and military—dedicated to the premise that a strong, modern mobile army is essential to national defense.

The association supports many programs, including scholarships to West Point and ROTC admission programs, civil defense, principles of freedom and patriotism and others.

Address of the Greater Los Angeles Chapter of the Association is 6087 Sunset Blvd., Hollywood, Calif. 90028.

Frank Merlino's Scouting Includes Being Den Mother

Frank Merlino has held just about every advisory position there is in the Boy Scout program. He's even been a Den Mother.

Mr. Merlino, supervisor of Product Support for the Special Projects section of the Electronics Division, has been involved in scouting for the past 24 years.



Mr. Merlino

As a member at large of the Orange County Empire Area Council, Mr. Merlino contributes to the over-all training program for some 22,000 boys.

He also is roundtable commissioner for District Cub Scout leaders, captain of the Leaders Training team, and a member of the Eagle Scout board of review. This year, alone, he has counseled 75 boys seeking merit badges in various skill areas.

Between 1963 and 1966, Mr. Merlino participated in several

seminars and conferences to conceive new programs to interest more boys in scouting. The result of these seminars ultimately led to the development of modified and specialty scouting programs, all designed to assure that the program keeps pace with the times.

Although he is shy about personal awards he has received, he holds the Silver Beaver. This award is presented by the Boy Scout national council for "outstanding service to boyhood."

As a holder of the Wood Badge, Mr. Merlino was required to spend eight days at an outdoor training program and complete 15 academic assignments.

Mr. Merlino's scouting activities also have had an effect on his family. His wife is head of the Den Mothers' Craft Training program and his two boys were Cub, Boy and Explorer Scouts.

He sums up his work in scouting by saying "guiding a young boy today to be a good citizen could have an effect on our country's future."



A FRIEND-IN-NEED TO UNFORTUNATE ANIMALS
Dawn Noice with some of the many pets at her home.

PIGEONS TO JACK RABBITS

Mrs. Noice Gives Help, Home to Pets

All birds and animals have a friend in Dawn Noice. In recent months she had cared for a blind pigeon, made a splint for a broken legged dove, and put a cast on a jack rabbit.

The pigeon she found beside a palm tree. It was unable to fly because of its sight. The dove had been hit by a car and was flopping beside the road when she saw it. She made a splint for it by splitting a feather quill and placing it around the delicate leg. The jack rabbit she found with a broken leg trying to hide in the ivy in front of the Electro-Mechanical plant where she deburrs parts in the Machine Shop.

She took the rabbit home and made a plaster-of-paris cast. It was promptly kicked off.

Mrs. Noice began collecting homeless pets when she was a child and has kept it up through the years. The domesticated ones she keeps. Generally, she turns the wild ones loose as soon as

they can take care of themselves.

An exception is a blue jay which has made a permanent home with her. It was unable to fly when she found it. After nursing the bird back to health, she turned it loose. It was immediately attacked by mocking birds and she had to run to the rescue. Since then the blue jay has stayed with her, living in a cage during the day and flying about the living room after she comes home.

Family Affair

Her enthusiasm has extended to her husband, and now he is collecting pets also. Once he went out to a remote area to test his citizen band radio and found a starving puppy someone had abandoned. He brought it home and the dog now has been with them for five years.

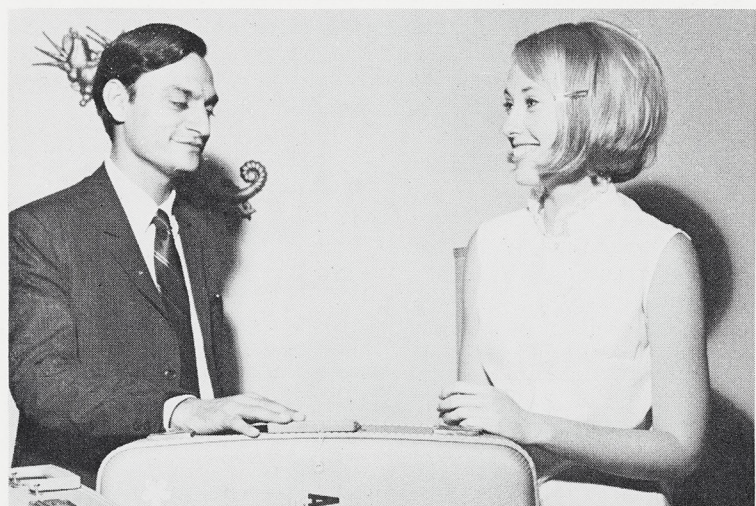
Today Mrs. Noice's pets include chickens, ducks, geese, a dog, turtles, the blind pigeon, the

blue jay, a jack rabbit, doves and a horse as more or less permanent members of the household. Others come and go. She is ready to make a home for just about anything except cats. Not that she has anything against cats, but cats and birds don't mix.

Fortunately, she lives in an area where she can keep such a large selection of pets. It's fun taking care of them, she reports, but confining. She can never go anywhere because she has to stay home and feed the chickens, ducks, geese, pigeons, etc., etc., etc.

CAMPOUT COMING

A Gem and Mineral Club fish-out and rockhunt will be held over the coming weekend at Jalama Beach, north of Santa Barbara. Petrified whale bone hunting and surf fishing will be featured.



SPENDS SUMMER IN IRAN
Iranian Saif Ullah taught Persian to Sandy Vaughan.

Sandy Vaughan Spends Summer In Shiraz, Iran

Tall, blonde Sandra Lee (Sandy) Vaughan, daughter of Ventura's Guy Ransbottom, is spending the summer as an American field service representative in Iran.

Miss Vaughan, 17, is representing Camarillo High School where she will be a senior this fall. She left June 25 for Shiraz, Iran, where she is staying with the family of a government worker.

She writes that she is impressed by the hospitality and warmth of the Iranian people, the abundance of trees and fountains in the public roadways and the many historical and cultural landmarks.

"I even saw a real live belly dancer in Istanbul" on a side trip to Turkey, she wrote home.

As Camarillo's official representative she carried personal greetings from the mayor of that city to the mayor of Shiraz.

Preparing for the 10-week visit she learned Persian from an Iranian, Saif Ullah, who is interning at Camarillo State Hospital. Ventura Engineer Ray Lavi, a native Iranian, also offered books on his country.

When she returns to Camarillo High next month she will be president of the local AFS chapter.

WE ASKED THEM—What Are Your Plans For The Labor Day Holiday?



Mrs. Hutchins

Wanda A. Hutchins, operator helper, Northrop Carolina:

My husband and I are traveling to Danville, Virginia, to visit friends. While traveling through Virginia, we plan to visit several historical sites.

Alex (Scotty) Blackwood, welder, Ventura:

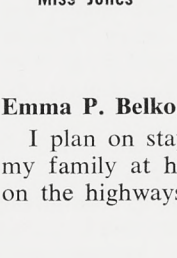
At home with my family. There's too much traffic on the highways; it's much, much safer at home. And besides, two of my grandchildren are coming from Redondo Beach to visit me—I'd better be home.



Miss Jones

Barbara Jones, secretary, Corporate Labs:

My boyfriend and I are going scuba diving at either Santa Cruz Island or Newport Beach.



Mrs. Belko

Emma P. Belko, assembler, Electronics:

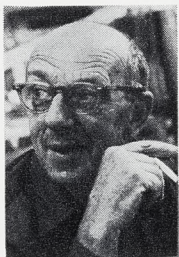
I plan on staying in town and relaxing with my family at home. It's too dangerous to get on the highways.



Mr. Bruns

Lewis Bruns, factory assistant to the superintendent, Santa Fe facility:

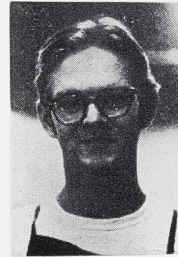
My wife and I are going to take our granddaughter with us to Phoenix, to see my brother-in-law. He and I will probably go fishing and take in some dog races.



Mr. Blackwood

Arnold Giroux, Optical Fabrication, Electro-Mechanical:

I'll just rest and take it easy. Others can fight the traffic on the freeways.



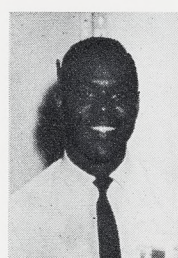
Mr. Giroux



Miss Garcia

Rose Garcia, shipping processor, Ventura:

San Francisco. It's a great city. Not only is it great for sightseeing, but the people there are different than they are here. The city and some of its people can be very formal sometimes.



Mr. Young

Ross H. Young, area dispatcher, Electronics:

My family and I will spend the holiday at home. We'll probably have a few friends over for a cookout and spend the whole day in our backyard.

Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale	
Station Wagon, 1956 Borgward, 2-dr., 1493 cc, 4-spd., all-synchro. trans., \$75. 213-675-1354.	A
Chevrolet, 1967 Caprice, 396, Comfortron control heat & air, full power, d/brakes, AM-FM, \$2,495. 213-759-0493.	A
Camaro, 1968 228, w/headers, mags, & 4.56 gears, \$3,000. 213-324-8265.	A
Station Wagon, 1959 Chevrolet Kingswood, 9-pass., V-8, auto., r/h, \$200. 213-754-3665.	A
Oldsmobile, 1957 4-dr. Holiday, full power, \$125. 714-897-3937.	A
Dodge, 4-dr., r/h, \$100. 213-671-5106.	A
Corvair, 1961 2-dr., eng. recently o/hauled, \$300. 213-541-2083.	A
Datsun, 1968 4-dr., stick, radio, \$1,500. 714-529-0882.	A
Continental, 1963 convt., air cond., all elec., \$1,450. 213-378-8905.	A
Volkswagen, 1968, stick shift, AM-FM radio, \$1,525. 213-679-7008.	A
Station Wagon, 1963 Chevrolet, 9-pass., air, p/s, p/b, \$825. 714-897-8201.	A
Station Wagon, 1956 Chevrolet Nomad, 283 cu. in., dual quads, auto. trans., \$1,200. 213-326-6176.	A
Oldsmobile, 98, 1959 2-dr. h/top, full power, \$150. 213-534-3100.	A
Pontiac, 1969 Le Mans, p/s, p/b, air, AM-FM radio, \$3,495. 213-830-7489.	A
Mustang, 1965, V-8, a/c, p/b, p/s, \$300 & take over \$59 mo. pymt., \$1,500. 213-636-4553.	A
Corvair, 1966 Corsa, 140 h.p., \$1,059. 213-542-4185.	A
MGA, 1959, top & tonneau, \$500. 213-672-5376.	A
Ford, 1967 convt., V-8, 289 eng., r/h, a/c, auto. trans., \$1,600. 213-631-7947.	A
Dune Buggy, 1967 VW eng., fiberglass body, top & curtains, \$1,800. 213-377-5059.	A
Corvette, 1960, 4-spd., new tires, \$1,385. 213-327-4816.	A
Scout, 1962 International, 4-wheel drive, \$850. 213-378-0875, 213-545-1766.	A
Station Wagon, 1967 Datsun, \$1,095. 714-968-4120.	A
Chevrolet, 1966 Impala, 2-dr. h/top, 283, V-8, 3-spd. stick on column, r/h, p/s, \$1,595. 213-679-3492.	A
Ford, 1957, 2-dr., rebilt. motor, p/s, r/h, \$300. 213-679-4464.	A
Mustang, 1966 2+2 GT, auto., p/s, d/brakes, hi-perform. eng., \$1,475. 213-670-0804.	A
Mustang, 1969 Mach I, 315 cu. in. eng. w/quad carb., F-70 tires w/comp. susp., radio, 4-spd. trans., \$3,095. 213-375-1396.	A
Porsche, 1958, 1600 cc eng., radio, \$1,400. 213-379-9202.	A
Mustang, 1966 289 V-8, Cruise-O-Matic, p/s, r/h, \$1,495. 213-291-3778.	A
Dodge, 1968 Dart 270, 2-dr. h/top, 273 V-8, auto., p/s, \$2,295. 213-837-3707 a.m.	A
Dodge, 1958 Coronet, 2-dr., h/top, r/h, p/b, p/s, \$250. 213-675-2159.	A
Mustang, 1968 Fastback GT, 390 cu. in. hi-perf., 4-spd., d/brakes, extras, \$2,600. 213-374-8894.	A
Buick, 1960 Invicta, 4-dr. h/top, p/b, p/s, auto., r/h, \$250. 213-639-7582.	A
Volkswagen, 1964, Porsche rims, extractor exhaust, other extras, \$1,150. 805-527-6854.	A
Austin America, 1969, stick shift, 4-spd., low mileage, \$1,550. 213-322-3420.	A
Chevrolet, 1964 El Camino, fact. air, p/s, p/b, 3-spd., 283 V-8, \$1,095. 213-677-1001, 213-677-4342.	A
Buick, 1967 Riviera, fully equipped, \$3,200. 213-673-1566.	A
Plymouth, 1969 Roadrunner, \$3,000. 213-672-0279.	A
Pontiac, 1962 Catalina, 1,400 mi. on rebilt. 389 cu. in. V-8, \$350. 213-679-7163.	A
Dodge, 1960, V-8, 4-dr., r/h, auto., p/s, \$225. 213-375-7401.	A
Chevrolet, 1957 convt., rebilt. 327 eng., & trans., Hurst 3-spd., \$245. 213-644-6733.	A
Austin Healey, 1962 3000, \$1,500. 213-293-5827.	A
Camaro, 1969, 307 V-8, p/b, p/s, r/h, air, auto. trans., \$3,500. 213-675-8567.	A
MGB, GT, 23,000 mi., wire whls., \$2,300. 714-644-2887.	A
Mustang, 1966 fastback, V-8, auto., r/h, stereo tapedeck, \$1,395. 213-328-5734, 213-320-7166.	A
Camping Van, 1965 Chevrolet, \$1,300. 213-326-5457.	A
Ford, 1958, 2-dr., 332 cu. in., \$300. 213-675-8278.	A
Chevrolet, 1954 2-dr., r/h, \$100. 213-674-8997.	A
Ford, 1966 Galaxy 500, 2-dr., V-8, h/top, r/h, p/s, auto. trans., \$1,550. 213-672-0235.	A

Automobiles For Sale	
MGB, 1966, r/h, \$1,600. 213-436-5965.	A
Chevrolet, 1960 Bel Air, 4-dr., 6 cyl., auto., r/h, \$200. 213-378-1749.	A
Cadillac, 1957 Coupe de Ville, \$150. 213-675-8673.	A
Cougar, 1968, air, p/b, p/s, \$2,600. 714-530-2479.	A
Dodge, 1963 Dart GT, 6-cyl., std. trans., \$550. 714-828-9243.	A
Cadillac, 1962 Fleetwood sedan, r/h, \$550. 213-645-4163.	A
Corvair, 1961 Monza, 2-dr., 4-spd., r/h, \$450. 213-541-1625.	A
Mercury, 1962 Comet, 2-dr., Hydromatic, h/top, \$400. 213-755-7166.	A
Chevrolet, 1963 Bel-Air, 4-dr., 283 V-8 eng., \$700. 213-596-0019.	A
Pickup, 1963 GMC, ½-ton, o/size tires, \$750. 213-346-7049.	A
Truck Camper, 1963 ¾-ton GMC, V-6, w/ Fleetaire camper, r/h, o/load springs, auto. trans., a/c, \$1,750. 213-326-8390.	A
MG, 1966 sport sedan, complete service records, \$1,000. 213-790-4200.	A
Station Wagon, 1963 Falcon, auto., r/h, \$195. 213-324-1270.	A
Pontiac, 1963 Catalina, convt., p/s, p/b, r/h, \$625. 213-675-0501.	A
Pontiac, 1965 Le Mans, 327 V-8, auto., AM-FM, reverb., \$1,500. 213-325-7705.	A
Household Items For Sale	
Mangle, new unit, \$25. 213-423-2901.	B
Rugs, 2 5' x 8' multi-color gold shag, \$20 ea. 213-377-2160.	B
Dining Room Set, Duncan Phyfe, 6 chairs, buffet & table, \$75. 213-831-1745.	B
Cedar Chest, Lane, contemporary style, \$35. 714-545-0101.	B
Crib, Bassett & dresser set, \$75. 213-376-4831.	B
Refrigerator, \$50. 213-939-4213.	B
Wringer-Washer, Kenmore, 1967 deluxe model, \$35. 213-379-8768.	B
Swivel Rocker, black, \$65. 213-345-3634.	B
Beds, twin, firm mattresses, box springs & steel frames, \$40. 213-370-7092.	B
Couch, 9½', blue & green quilted, \$125. 213-370-9972.	B
Rug, 15x20 multi-color, padding, \$50. 213-889-8723.	B
Dining Room Set, Danish modern, walnut formica, 4 chairs, \$40. 213-677-5265.	B
Refrigerator, for cottage or small apt, \$30. 213-320-3430.	B
Chair, swivel/rocker, gold uphol., w/ottoman, \$25. 213-833-8436.	B
Chair, brown naugahyde, recliner, \$20. 213-374-5133.	B
Wig Desk, antique, \$75. 213-675-9433.	B
Dresser, marble top, \$195. 213-693-2324.	B
Refrigerator, Norge, white, 12 cu. ft., freezer compartment, \$35. 213-325-5245.	B
Dryer, Kenmore elec., \$50. 213-373-5227.	B
Washer & elec. dryer, Lady Kenmore, turquoise, 1½ yrs. old, \$300. 213-379-1708.	B
Rugs, 2 oval braided, gold, 12x14 & brown, 9 x 12, \$40. 213-372-4691.	B
Sewing Machine, Kenmore, zig zag, w/attachments, \$30. 213-372-8714.	B
High Chair, chrome, \$11. 213-324-4817.	B
Washer, Kenmore, cycle fabric, \$25. 213-326-0694.	B
Mattress & box springs, single, \$50. 213-831-3938.	B
Bed Frame, mahogany, w/slats, dbles. size, \$5. 714-968-5343.	B
Washer, Hoovermatic, portable, 8 lbs., used 8 mos., \$75. 213-677-5205.	B
Miscellaneous For Sale	
House, 2-bdrm., 1 ¾ bath, ½ acre ground, owner carry mortgage, \$49,500. 213-675-1776.	C
Wardrobe Trunk, Hartman, \$14.75. 213-474-5726.	C
Surfboard, 9' 10", \$30. 714-372-8618.	C
Boat, 7' Sea Snark, sail, oars & all access., 3 mos. old, \$125. 213-324-6843.	C
Boat, 31', Chris Craft, twin screws, engs. recently o/hauled, sleeps 6, \$8,500. 213-371-1546.	C
Sailboat, 15½', dac main & jib, tilt-trailer, extras, \$650. 213-534-4816.	C
Massage-A-Belt w/dial control, 115 volt, 60 cycles, \$30. 213-324-4507.	C
Air Cleaner, Shelby, 4 barrel, \$5. 213-377-7670.	C
Motorcycle, 1966 Honda Scrambler 305, \$375. 213-375-4558.	C
Guitar, elec., 3 pickups, Fender cutaway style, \$50. 213-756-0638.	C
Table Saw, Craftsman w/extensions, \$100. 213-754-1089.	C
Trailer, 20' 1969 Aristocrat, completely self-contained, used 6 mos., \$2,700. 714-524-1753.	C
Mold, 14', bottom & deck, for fiberglass boats, \$200. 714-871-1406.	C
Motorcycle, 1968 Honda, 350 Scrambler, \$525. 213-545-2211.	C
Lot, 25' x 80', level, on hilltop, all utils. in, close to Arrowbear Lake, \$2,300. 714-892-9318.	C
Accordion, contello, used 4 mos., \$200. 714-871-2046.	C
Changer, Garrard, Shure-M7, \$25. 213-639-6653.	C
Camera, Minolta SR7 Rokkor, 1:14 58 mm lens, w/case & flash, \$125. 805-482-8509.	C
Golf Clubs & bag, \$100. 213-378-7389.	C

Miscellaneous For Sale	
Mini Bike, Bonanza, BC 1300, 3½ h.p., centrifrical clutch, o/size whls. & tires, \$175. 213-676-8526, 213-676-1369.	C
Tires, 4 7-14.5, 8-ply B. F. Goodrich, \$30 ea. 213-676-0352.	C
Motorcycle, 1967 Honda 305 Scrambler, \$410. 213-671-6288.	C
Swim Pool, 4' x 18' Doughboy, incl. filter, chemicals, & ladder, \$150. 213-676-7269.	C
TV, 19" Admiral console, maple, \$54. 213-677-2797.	C
Rifle, unfired 30-06 03-A3 Springfield, sporterized stock & recoil pad, \$60. 213-672-4957.	C
Boat, 15', fiberglass, w/trailer & 1968 55 h.p. Chrysler outbd. motor, \$1,000. 213-344-1353.	C
Motorcycle, 1968 Triumph Daytona 500, many extras, \$850. 213-329-6969.	C
Edger, B & D, elec., ½ h.p., \$25. 213-675-6493.	C
Vacuum Cleaner, Compact, 8 mos. old, w/access., \$80. 213-370-2640.	C
Motorcycle, 1967 650 cc BSA, \$800. 213-326-5280.	C
Stereo, portable, 2 yrs. old, \$50. 213-644-1919.	C
Books, Reader's Digest condensed, \$25 or sell sep. 213-674-1847.	C
Stereo, 9' walnut cabinet, \$100. 805-498-2668.	C
Motorcycle, 1969 Yamaha, 305, 2 cyls., \$550. 213-772-3677.	C
Dress, square dance type & petticoat, red & white checked gingham, size 10, \$10. 213-674-6076.	C
Stamp Collection, complete U.N. mint in album & British Commonwealth mint George VI & Elizabeth II, \$325. 213-892-7191.	C
Tires, 2 B. F. Goodrich Trailmaker Silver-town, 6.70-15, 4-ply tubeless, \$10 ea. 213-676-3343.	C
Camera, 35 mm, Praktika Nova 1-B, lens focus, 50/1.8 auto. Oreston lens, 135/4 Preset, other access., \$90. 213-327-4267.	C
Dutch Door, 2-pc., 32" wide w/latching & access. hardware, \$18. 213-293-5993.	C
Piano, upright, recently reconditioned & antiques, \$185. 213-696-7529.	C
House, 2-bdrm. & den, service porch, dbles. det. gar., ¾-acre, fenced, trees, approx. 3 miles south of Lake Elsinore, \$11,750. 714-674-4591.	C
Pups, beagles, champ. sired, AKC, females, 7 wks. old, \$50-\$75. 213-324-8288.	C
Wire Wheels, 6 15" dia., w/2 5" B.C. & 2 4.5" B.C. knock-off adapters, \$140. 213-545-4953.	C
House, 2-bdrm., 2-baths, 4-car gar., redeco-rated, cpts., dps., 58' x 165' fenced lot, patio w/cabana, Mar Vista Hill, \$33,000. 213-397-3176.	C
Mower, Craftsman, power, \$20. 213-638-8250.	C
Accordion, Contello, 120 bass, w/case, \$150. 213-374-8645.	C
Motorcycle, 1963 Greeves Moto-Cross, square bbl. eng., recent o/haul, \$325. 213-425-5198.	C
Surfboard, 9' 10" Chuck Dent, \$70. 213-327-2939.	C
Organ, Kimball spinet, dbles. keyboard, \$400. 213-376-1472.	C
Bicycle, 20", girl's, w/banana seat, \$15. 213-532-7853.	C
Cabin, Big Bear Lake, sleeps 9, completely furn., \$12,000. 213-867-0662.	C
Amplifier, Columbia professional, w/2 channels, 4 pickups, \$100. 213-566-0711.	C
Lot, Lake Havasu City, Ariz., 5 minutes from lake, take over \$40 mo. pymt. & \$2,000. 213-672-0548.	C
Accordion, 120 bass, Cantante, w/case & carrying straps, \$125. 213-325-9322.	C
Pups, Weimaraner, AKC reg., champ. pedigree, 10 wks. old, shots, wormed, \$75. 213-675-9642.	C
Parakeet & cage, \$10. 213-395-1833.	C
Boat, 18', 70 h.p. outbd. motor, trailer, \$800. 213-644-5449.	C
Home, 3-bdrm., paneled family rm., 2 f/ places, 1 ¾ bath, cpts., dps., d/washer, near park, 5 min. to Hawthorne facility, will G.I., \$28,500. 213-323-0653.	C
Aircraft, 1946 Aeronca 7AC, \$1,950. 213-324-6770.	C
Aquarium, 20-gal., w/stand, \$20. 213-867-1479.	C
Motorcycle, 1968 Honda, 75 cc Scrambler, 5-spd., \$395. 213-372-1386.	C
Boat, 12' Lone Star, trailer, 12 h.p. Elgin outboard motor, \$300. 213-427-0894.	C
Spray Gun, w/4-qt. cups, production-type, never used, \$30. Box 1601.	C
Acreage, Lake Havasu City, 1/3 acre, 1 mile from lake front, \$5,500. 714-528-2548.	C
Motorcycle, 1966 Harley Davidson, 250 cc, \$325. 213-644-8238.	C
Surfboard, Bing, 9'2", \$25. 213-371-7830.	C
Engagement Ring, small solitaire, white gold band, \$25. 213-390-2958.	C
Lawnmower, deluxe push-type, \$5. 213-679-1631.	C
Guitar, Rickenbacker deluxe hollow body, 3 dual pickups, \$290. 213-474-5682.	C
Projector, Bell Howell, w/film editor, Kopel 8mm movie camera, \$100. 213-370-7268.	C
Camera, Rollicord, 10 yrs. old, \$50. 213-375-2332.	C
Ski Boat, Stevens flat bottom, Buick powered, tandem trailer, many extras, \$3,000. 213-675-3523.	C
Drill Motor, ¼, w/drill press conversion stand, \$15. 213-545-6719.	C

Miscellaneous For Sale	
Home, 3-bdrm., lge. fam. rm., take over G.I. loan, gar., Long Beach, \$24,750. 213-631-9189.	C
Rifle, military, 7.62mm Russian, \$20. Box 1602.	C
Guitar, Goya, Spanish Flamenco, \$100. 213-375-4574.	C
Motorcycle, Honda 160, scrambler handlebars, \$250. 213-371-5308.	C
Camera Case, underwater-type, for 35mm still camera, \$30. 714-530-2271.	C
Manifold, for Ford 427 Shelby, hi-rise, \$70. 213-676-2854.	C
Relaxing Machine, Stauffer-type, w/heater & timer, \$100. 213-322-4166.	C
Wig, dk. brown, short hair, \$25. 213-370-1360.	C
Telephoto Lens, Vivitar-T4 300mm auto. w/UV filter, other access., \$90. 213-532-4757.	C
Home, Westchester area 3-bdrm., 2 baths, family rm., laundry, low down, \$37,900. 213-645-5100.	C
Motorcycle, 1965 Mustang Trailmachine, \$275. 213-867-5809.	C
Slide Projector, Argus model 300, & 28 Aire-quist slide magazines, \$49. 213-340-8044.	C
Ski Boots, ladies, size 5½, black, \$4. 213-376-3533.	C
Motorcycle, 1964 Yamaha YDS2, 250 cc, many new parts, street equipped, \$350. 213-329-8887.	C
Toy, plush tiger, 33" high, \$10. 805-495-9383.	C
Compressor, Hallett, 1½ h.p., 2-stage, single phase, \$250. 213-327-6080, 213-644-2020.	C
TV, 21" b/w, Westinghouse Mod. H-K4600, remote control console, \$25. 714-962-1143.	C
Trail Bike, Honda 90, \$150. 213-370-3268.	C
Rifle, Marlin lever action, 30-30 cal. w/scope mount, rings & case, \$55. 213-329-3436.	C
Radio, Grundig Majestic, AM-FM, record player, \$35. 213-634-3641.	C
Tires & wheels, 4, size 775x14, \$20. 213-532-6917.	C
Cemetery Lots, 2 dbles., El Portal Sec., Inglewood Park, \$540 ea. or \$1,050 both. 213-324-5709.	C
Bird Cage, brass, tall, round w/extras, \$15. 213-370-8660.	C
Piano, ebony baby grand, Taber, \$495. 213-861-6404.	C
Sailing Club Membership, in Marina del Rey, \$30. 213-348-6313.	C
Wanted to Buy	
Doghouse for medium size dog. 213-674-3843.	D
Telescope, w/about 80 to 300 power & tripod, good working condition. 213-377-6193.	D
Sports Car, Triumph or Toyota, \$600 to \$700. 213-324-2130.	D
Falcon, 1962 or Rambler American, 1964. 213-328-3306.	D
Car, dependable, pay \$75 or more depending on condition. 213-374-1294.	D
Mini Bike, reasonable. 213-320-6685.	D
Exhaust Headers for Ford, 260 or 289 V-8. 213-454-5198.	D
Wardrobe Closet, lge. wooden. 213-679-1366.	D
Arc Light, small, 110 V. 213-676-8817.	D
Pack Frame, alum., & nylon pack, 27" to 32" long. 805-495-9410.	D
Pistol, 22 cal., inexpensive. 213-673-4280.	D
For Trade	
Home, 2-bdrm. & den, 2 baths, \$3,500 equity, Hawthorne area, trade for truck & camper or trailer. 213-644-3273.	E
Free (To Be Given Away)	
Pups, dachsie-beagle mixture, will be 6 wks. old Aug. 31. 213-644-3957.	F
Rentals Offered	
House, 4-bdrm., 3 baths, family room, f/ place, 2,450 sq. ft., in Cerritos, \$320 mo. 213-860-5782.	G
Cabin, Green Valley Lake, sleeps 6, \$30 w/end; \$60 wk. 213-324-9769.	G
Cabin, Moonridge, Big Bear Lake, sleeps 10-12, \$85 wk., \$40 w/end except holidays. 213-839-3279.	G
Cabin, Green Valley Lake, \$65 wk. 213-320-2002.	G
Home, 3-bdrm., 2 baths, bitins, f/place, completely redecorated, Hollywood Riviera, min. 1 yr. lease, \$350. 213-377-0146.	G
Duplex, unfurn., 2 children OK, lge. back yard, \$110 mo. 213-638-6871.	G
House, 3-bdrm., cpts., f/place, disp., fenced yd., \$250 mo. 213-379-8493.	G
Apt, 2-bdrm., cpts., dps., bitins, garb. disp. closed gar., avail. Sept. \$155 unfurn. 213-375-2091.	G

Rides and Riders		
Rides Wanted		
8 a.m. — 4:45 p.m.		
Broadway in Hawthorne to Brookhurst St., Fountain Valley. Evenings only. Linda Barnes, Aircraft ext. 2331, 714-962-0364.		
Rides Offered		
8 a.m. — 4:45 p.m.		
Canoga Park-Woodland Hills area. Stanley J. Ehlinger, Elec. Haw. ext. 808, 213-348-3289.		
Rentals Offered		
Apt, 3-bdrm., 2 baths, in Hawthorne, \$225 mo. 213-644-8385.	G	
House-Apt, furn. or unfurn., 2-bdrm., 1 bath, ocean-front, pvt. beach, sun deck, patio, enc. yard, f/place, near Long Beach Marina, \$385 mo. 213-431-2625.	G	
Working mother w/20 mo. old girl will share 3-bdrm., 2-bath apt., So. Redondo, w/female, heated pool, \$80 mo. 213-379-9047.	G	
Cabins, Lake Gregory & Crestline, sleeps 6, \$25 w/ends; \$60 wk. 213-391-2040.	G	
Duplex, 2-bdrm., cpts., disp., det. gar., 3 mi. from Aircraft Div., lease w/opt. to buy, \$155 mo. 213-370-3011.	G	
Rentals Wanted		
House, 2-bdrm., unfurn. dble. gar., bltin stove, \$150-\$175, WALTERIA, Torrance or Lomita area. 213-375-8902.	H	
House, 2 or 3-bdrm., South Bay area, family of 4. Must have fenced-in b/yard & be in good condition, partially furn., if possible, up to \$175 mo. 213-542-2307.	H	
Child Care		
Child Care offered, Lennox area, 5 minutes from Northrop. 213-674-5587.	I	
Child Care offered, my home, any age, day or night, full or part-time, 5 min. to Northrop. 213-675-3259.	I	
Child Care offered, by middle age woman, Lawndale area. 213-675-8844.	I	
Babysitter wanted, 7:30-10 a.m. &/or 3-5 p.m. for working mother, Hawthorne. 213-679-8383.	I	
Child Care offered, my home, Carson area. 213-329-8423.	I	
Personals		
We wish to thank all our friends at Northrop for their kindness, flowers, cards & expressions of sympathy in the recent loss of my husband & our father. SOPHIE LOCKREM & FAMILY.		L
Mere words cannot express the gratitude my mother & I felt for all your kind words of condolences, lovely cards & flowers during the loss of my father. JEAN BUCHANAN.		L
We are deeply grateful for the many heartwarming expressions of sympathy extended to us on the recent loss of my husband. MRS. MELVIN BROWN & DAUGHTERS.		L
My sincere thanks to all my many friends at the Electronics & Aircraft Divisions for the luncheon, remembrances & good wishes. I will miss you all. LETHA PETERSON.		L
Musicians, alto or bari saxophonist & guitar needed for 9-pc. rehearsal band meeting in El Segundo Wednesday eves. 213-322-4383.		L
For Sale or Trade		
Lot, level, in Wofford Heights, Lake Isabella, water & elec. in, \$4,950 or trade for home in Torrance area. 213-679-8054.	M	
Boat, 14' outbd., fiberglass, \$250 or trade for 40 to 60 h.p. Evinrude eng. 213-378-2609.	M	
Lots, 2, Salton City, 4 blocks to yacht club, \$6,150 & \$6,350 or trade for 3-5 acres, suitable for horses. 714-892-3946.	M	
Acreage, 2½ acres w/16x24 cabin, 2 mi. from Barstow, water, trees, \$50 mo., \$500 dn., \$5,000 or trade for Oregon property. 213-638-1789.	M	
Buick, 1968 GS, r/h, air, p/s, \$2,352 bal., \$500 or trade for Ford, 1962 or '63, or Chev. station wagon. 714-827-7218.	M	

Two Long-Time Veterans Will Retire Next Month

Two Northrop veterans who have seen many changes will retire on September 1. They are Ronnie Richards, tool engineer, and Ted Wilson, facility engineer.

Mr. Richards began work with Northrop in the Aircraft Division



Mr. Richards



Mr. Wilson

in 1942, building jigs and fixtures. He then worked in tool developing and in Prosthetics when Northrop was building artificial limbs. After a tour in tool planning, he transferred to Anaheim in 1957. Since that time he has worked at tool engineering and is associated with the Electro - Mechanical Division's support of the Boeing 747 program.

After retirement he is looking

forward to travel in the United States, probably in a house trailer. Among his souvenirs of his years with Northrop is the first ID picture made of him back in 1942. "The company and its work aren't the only thing that has changed since then," he said reflectively.

Ted Wilson has also seen changes. In his 17 years and nine months with the company, he has seen the Anaheim facility develop from an orange grove into the present diversified complex. His work as a facility planning engineer began before Plant One was opened and has continued without interruption through the 17-year buildup.

His retirement plans call for still more work. This will be building up mountain property he owns near Lake Isabella. He will finish his cabin, drill a well, and make improvements. But first he and his wife, Coramabel, will take a trip to New Zealand and Australia. After that he and Mrs. Wilson will babysit for four months while his daughter goes to Spain. Then the cabin building will start.

Mrs. Moore and Mrs. Bailey Take Golfing Honors

Sally Moore and Shirley Bailey took first place in the recently completed Women's Twilight Golf League, according to Molla Clark, commissioner.

Sally is a supplier research clerk and Mrs. Bailey's husband is Sandy Bailey, editor, Technical Documents group.

Second place winners were Vera Auest, whose husband is J. A. Auest, Hawk Program engineer, and Dorothy Smith, wife of "Skip" Smith, supervisor, Publications Production and Proposal unit.

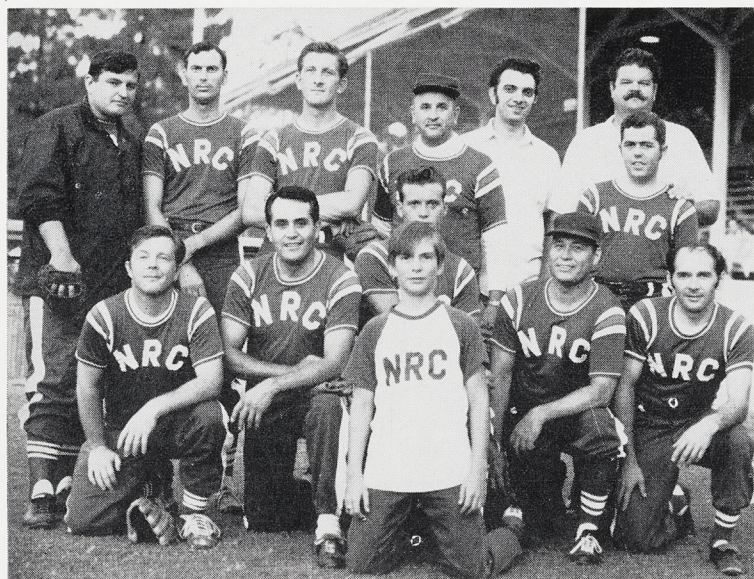
Trophies were awarded at a dinner held at Bill's Ranch House with 22 golfers and their husbands present.



CHAMPS IN TWILIGHT LEAGUE

Winners in the Women's Golf Twilight League are from left, Vera Auest, Sally Moore, Dorothy Smith and Shirley Bailey.

NRC MEN'S SLO-PITCH SOFTBALL TEAM



THIS TEAM ENDED the season in fifth place in the Anaheim City League. The league is made up of only top teams and this is the first time the Electro-Mechanical Division team has participated. The players are, back row, Bill Brotherton, Larry Nielson, Brent Bjorkland, John Burke, Mike Tomasello, Earl Jackson. Front row, Roger Skinner, Al Cruz, Gary Oliver, Jaime Lopez, Bob Madisen, standing, and Jim Melatti. In front is bat boy Victor Blake. Mr. Burke is softball commissioner, Mr. Cruz is team captain, Mr. Jackson is manager, and Mr. Melatti is equipment manager. Not shown are players Peck Campbell, Frank Rangel, Don Ross, Garry Smith, Harry Smith, George Varner, and Steve Winters.

Gem, Mineral Club Will Aid Country Cleanup

The Electro-Mechanical Division Gem and Mineral Club will join the California Outdoor Recreational League and the Bureau of Land Management in the "Johnny Horizon Countryside Cleanup."

The cleanup outing will be held the weekend of October 11 in the "Calico Mountains" camp at Tin-Can Alley east of Barstow. This is a very colorful area with a wild west history of ghost towns and lost mines.

Gaylord Miller, commissioner of the NRC Gem and Mineral Club, said the outing would clean up the countryside of litter which, all over the nation, costs \$1 billion annually.

"Recreationists joining the cleanup will be performing an educational service by focusing attention on the litter problem," Mr. Miller said. He urges all those interested in helping to contact him at ext. 531.



TROPHIES FOR NOON BRIDGE WINNERS

Jack Kirkeby, left, presents trophies to Jerry Winterton, Jim Kallas, Nelson Owens and Jack Swanson.

DARK HORSE GALLOPS IN

Picking Bridge Winners Tough Job

After the dealing, bidding and finessing were all done, the Electro-Mechanical Division NRC Noontime Duplicate Bridge players learned one lesson: let well enough alone.

The play was divided into two

groups—one in Y-3 and one in Y-12. There was no difficulty in Y-3. Jerry Winterton and Jim Kallas scored a clear victory. But in Y-12 the team of Audrey Glover and Lew Lantz were the "first first placers" until nosed out in a recount by the "second first placers" Bill Koenig and Charles Smith. It seems that the "first" first won by one half point. A recount disclosed a one point error in the count which then put the "second" first place team at the top.

Then another recount disclosed another one half point error which made the two first place teams in a tie. Due to vacations, it was impossible to schedule playoffs, so they decided to change the scoring style and score solely against the teams in Y-12 instead of against everyone in the tournament, both Y-3 and Y-12, as previously.

This resulted in a dark horse third team of Jack Swanson and Nelson Owens galloping off with first prize while the two former "firsts" were left to ponder on the subject of justice.

Anyway, they were undaunted and all are back for the Fall Noontime Duplicate Bridge Tourney which began August 11. They play from 11:45 to 12:30 each day. Those interested in joining the noon sessions are urged to call Jerry Winterton at ext. 1137.

Eleven Receive Service Pins In September

Eleven veteran Electro-Mechanical Division employees will be eligible for 10 and 15 year service pins in September.

Those completing fifteen years service are James Rancolli, Henry Tolbert and Jack Kirkeby of Anaheim, and William B. Kurz of Brown and Root-Northrop, Houston, Tex.

The 10-year veterans include Marilyn Burns, Ronald W. Cramer, Roy Gregory, Ara Kellum, Mary Strickland, Phillips Morgan and Sue Iannarone.

PATTERSON PICKED

William C. Patterson, applications engineer for the Marketing Division, was elected president of the Foothill High School Boosters Club for the 1969-1970 season. The club supports athletics with fund raising activities, providing sports trophies and arranging annual awards banquets.

Holy Land Maps Aid NRC Bible Club



MAPS OF THE HOLY LAND provided to the Electro-Mechanical Division Bible Club by NRC helps members to visualize and understand the Biblical settings they are studying. Here Marvin Wiebe, club commissioner, points out the location of the Greek City of Philippi for, from left, Dannis Berscheid, Harry Dent, Paul Smith, Esther Lee Brown and Jeanne Lipiane. The club meets on Tuesdays and Thursdays in the Y-1 Conference Room.

NORTHROP NEWS

ELECTRO-MECHANICAL DIVISION EDITION

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GOOD FOR LIFE

Vaughn Peake, NRC president, presents Tom Quayle with NRC life membership card.

Tom Quayle Retires After Thirty Years at Northrop

Tom Quayle, the oldest man in point of service with Northrop, received his 30-year service pin from Thomas V. Jones, company president, and then announced his retirement from a fully active position.

Mr. Quayle's 30 years with Northrop was preceded by another 10 years with the company's predecessors. He joined John K. Northrop in 1929 as an engineering draftsman and helped evolve early design concepts for new types of aircraft structures. When Mr. Northrop founded the Northrop Corporation in 1939, Mr. Quayle served initially as a project engineer and then as engineering manager.

Many Duties

During the war years of 1941 through 1945, he opened and managed the Northrop Washington and Dayton offices. He first came to Anaheim in 1951 when the facility opened. In 1956 he was appointed manager. He left in 1961 when Mr. Jones appointed him Corporate vice president for Commercial and Industrial programs.

In this capacity he served as president and general manager of Northrop Architectural Systems. In 1966 he was appointed to direct activities of the Needham Department in Massachusetts during

a difficult transition period. He returned to Anaheim early this year to become manager of the former Anaheim department.

In announcing Mr. Quayle's retirement, Frank W. Lynch, vice president and general manager, Electro-Mechanical Division, said: "Throughout the years, Tom has demonstrated qualities which we have all come to admire. We remember his ready smile, his sincere personal interest in others, his unflinching interest and loyalty to Northrop, and others too numerous to mention. These will be sorely missed. To Tom and his wife, Gen, we extend Northrop's and our own personal thanks for a job well done."

Mr. Quayle said, "While I am retiring from an active position in the Northrop organization, it is certainly not my intent to lose touch with the many interesting activities in Northrop, and I look forward to possibly lending a hand here and there if the opportunity arises. These have been wonderful years working with wonderful people."

Netherlander Uses Radio to Return Recent European Visit of Flannagan

One of the people Jack Flannagan visited on his recent trip to Europe has returned the visit — via radio.

Mr. Flannagan, during a recent noon session with the Electro-Mechanical Division NRC Radio Club, picked up a shortwave ham radio call from Heda Nydam of Leeuwarden, Netherlands, broadcasting on PAOQT.

He met Mr. Nydam when he was looking for a ham station in The Netherlands so he could make contact back to his fellow hams in Anaheim. They were unsuccessful at first, but later Mr. Nydam made directional changes in his antenna and the friendship that began over the attempted call to Anaheim has been resumed via radio.

Mr. Nydam reported that he uses complete Hallicrafters equip-

Organizational Changes Made; Aid Functional Responsibilities

Consolidation of the majority of the Electro-Mechanical Division operations at the Anaheim facility has resulted in organizational changes emphasizing functional responsibilities, according to Frank W. Lynch, vice president and general manager.

Activities of the Anaheim department and the Tactical Systems department have been realigned into the Technical department, Marketing department and Operations department.

The Technical department will

be managed by Dr. W. B. Simecka. Reporting to him will be the Systems Analysis section, Electro-Optical section, Ordnance Systems section, Automation Systems section, ATAR program office, MARS program office, and the Advanced Project office.

William J. Oakes will be manager of the Marketing department which will consolidate marketing elements of the former Anaheim department, Tactical Systems, and Division Marketing staffs. It will also include the Integrated Logistics Support group.

The Operations department will be managed by Don A. McInnis, and will include Procurement, Manufacturing, Ordnance Manufacturing, Quality Management, and the 747 Program Management office. Charles M. Hargrove will succeed Mr. McInnis as manager, Manufacturing section.

In another change, George M. Mangurian has been named manager of the Northrop Support Operations department. He also will continue as director of the Ocean Systems section which will be incorporated in the Support Operations department.

The Polaris/Poseidon, TEAMS, and HAWK program management offices will report directly to Mr. Lynch. All other existing elements of the Electro-Mechanical Division remain unchanged.

Mr. Lynch said the goals, objectives and product interests of the former Anaheim department and Tactical Systems department remain unchanged and will continue to be supported by the three new departments.

Mr. Hargrove Gets Special Award

Charles M. Hargrove, manager, Manufacturing section, Electro-Mechanical Division, received a certificate of appreciation for his community service as a member of the Cerritos College Technology Advisory Committee for Aerospace Production Planning.

The committee assists the college in organization and updating of courses and in development of programs in the Technology Division.

The certificate to Mr. Hargrove was accompanied by a letter of appreciation from Siegfried C. Ringwald, Cerritos president.

A RECORD?

The NRC Ladies Softball Team closed the season with a perfect record — of sorts. They didn't win a game!

However, Commissioner Elena Huerth is undaunted. "We got some excellent practice," she said. "Now we'll be in shape to really field a winner next year."

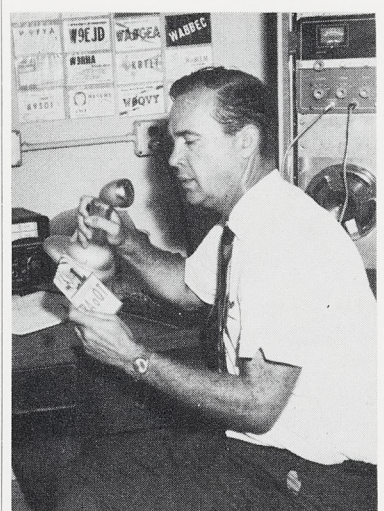
In addition to Mrs. Huerth, players included Cheri Swanson, Lois Duncan, Sally Ann Osuna, whose mother, Sally Osuna, is a Northrop employee, Ann Dean, Corky Yorke, Mae Reak, Esther Michel and Barbara Baumann. Dennis Read was manager-coach.

The team played 12 games in the Anaheim "A" League.

ADVANCED PROJECTS OFFICE IS OPENED

An Advanced Projects Office has been established within the Electro-Mechanical Division's Technical department, according to Dr. W. B. Simecka, department manager.

The office, located in Westminster, Colorado, will be under the direction of Sidney E. Zaharia as project engineer. Mr. Zaharia has an extensive background in weapons technology, starting with the Manhattan Project. Later he worked with Beech Aircraft on the Apollo and Lunar Environmental Module programs as senior engineer.



JACK FLANNAGAN

Chief Michel Pays Visit To Anaheim

Newly appointed Chief of Police David Michel of Anaheim, accompanied by Detective Lloyd A. Lowry, recently visited the Electro-Mechanical Division.

The visit was hosted by Gene Jessick, chief, Security and Plant Protection, and John Burke, supervisor, Plant Protection. Ed Wylie, supervisor of Production Control, escorted the group through the Page Court facility. During the visit, the chief also talked with Don McInnis, manager, Operations department.

The visit to the Northrop facility is an outgrowth of the new chief's deep interest in community relations. He said he had been informed of Northrop's excellent participation in community affairs and the cooperation that has existed between the company and the community.

Big Time for All



CHILDREN scramble for candy at the NRC picnic, Swiss Park. See page six for more pictures on the festivities.



NEW POLICE CHIEF MAKES COMMUNITY RELATIONS VISIT

From left, Don McInnis, John Burke, Lloyd A. Lowry, Chief Michel, Gene Jessick, and Tom Quayle.

NORTHROP NEWSMAKERS

W. F. Keller and **J. A. Bogdanovic**, Aircraft Division, have co-authored a paper titled "Development of a Hybrid Pressurization System" for presentation before the 11th Liquid Propulsion Symposium.

Dr. M. H. Kamdar and **R. K. Govila**, Northrop Corporate Laboratories, have teamed to write a paper titled "Cleavage in Beryllium Monocrystals" for publication in the transactions of the Metallurgical Society of AIME.

P. F. Jensen and **F. W. Peitzman**, Aircraft Division, have co-

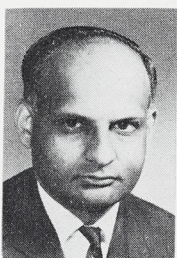
authored a paper titled "How Model Size Effects Model Aerodynamic Characteristics in the Transonic Wind Tunnel" for presentation at the 32nd meeting of the Supersonic Tunnel Association being held this month in Stockholm, Sweden.

Maurice I. Sancer, Northrop Corporate Laboratories, has written a paper titled "Shadow Corrected Electromagnetic Scattering from a Random Rough Surface" for publication in IEEE transactions.

R. E. Herfert, Aircraft Division, has written an article titled "Fracture Characteristics of Ferrous and Nickel Base Alloys Under Accelerated Stress Corrosion" for presentation recently at the National Electron Microscope Society of America Meeting.

Dr. Kamdar Joins NCL's Senior Staff

Dr. M. H. Kamdar has joined Northrop Corporate Laboratories as a member of the senior technical staff of the Materials Sciences Laboratory headed by Dr. Y. P. Gupta.



Since late 1961 Dr. Kamdar has served as a member of the scientific staff in the Material Sciences Department of the Research Institute of Advanced Studies, Baltimore. Dr. Kamdar is a noted authority in the field of brittle fracture in metals and effects of environments on mechanical properties of metals. He has concentrated much of his research work in brittle fracture in close packed hexagonal metals, such as zinc and beryllium, in liquid metal embrittlement or brittle fracture of ductile metals in liquid metal environments and hydrogen induced embrittlement of steels. He has published a number of papers on these topics and co-authored a chapter in a forthcoming book on fracture.

He received a bachelor of science (with honors) degree in chemistry from the University of Bombay, India, and a master of science degree in ceramic engineering from the University of Washington. Dr. Kamdar received his doctorate in metallurgy from MIT.

Northrop Men Will Play Key Roles in SAE Meeting

Ten Northrop men will play key roles in the 1969 Society of Automotive Engineers National Aeronautic and Space Engineering and Manufacturing meeting Oct. 6-10 at the Ambassador Hotel, Los Angeles.

Thomas V. Jones, Northrop president and chairman, will be master of ceremonies at the annual banquet. Principal speaker is Vice Admiral Vincent P. de Poix, deputy director of Defense for Research and Development.

Charles W. Eyres, Aircraft Division, is co-general chairman of the meeting.

Scheduled to take part are:

J. W. Buttery, panelist, "Application of High Production Manufacturing Techniques in the Airframe Industry";

L. W. Klauer, panelist, "De-

veloping and Implementing New Airplanes from Engineering to Manufacturing";

M. P. Stash, panel secretary, "Handling of Large Assembly for Large Aircraft";

T. M. Frederick, panelist, "Handling and Fabrication of Skin Panels";

A. L. Langlois, panelist, "Handling and Fabrication of Stringers, Frames";

H. K. Hanchett, paper presentation, "Problems of GSE Standardization";

T. A. McGaughey and H. A. Turner, Jr., panelists, "Aerospace Scheduling and Work in Process Scheduling";

Mr. McGaughey and Mr. Turner are from the Electro-Mechanical Division, the remainder are Aircraft Division officials.

DISNEYLAND

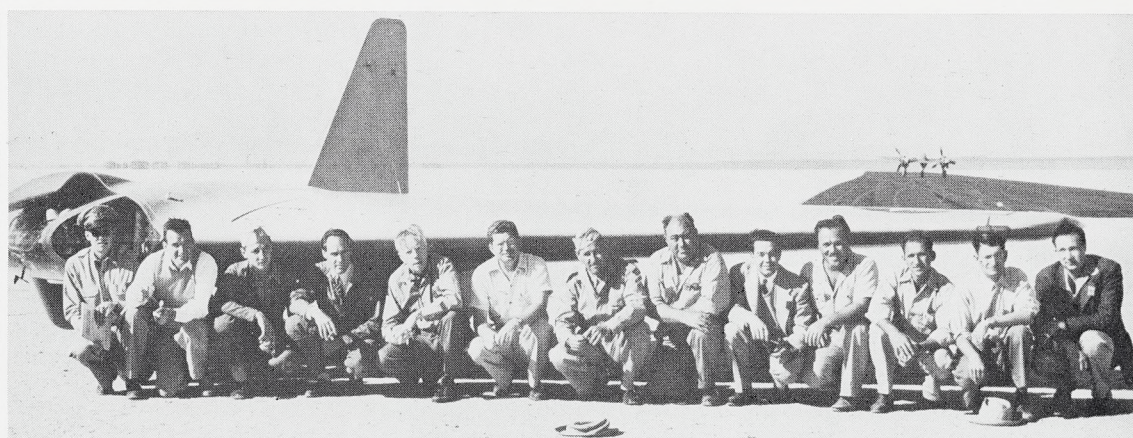
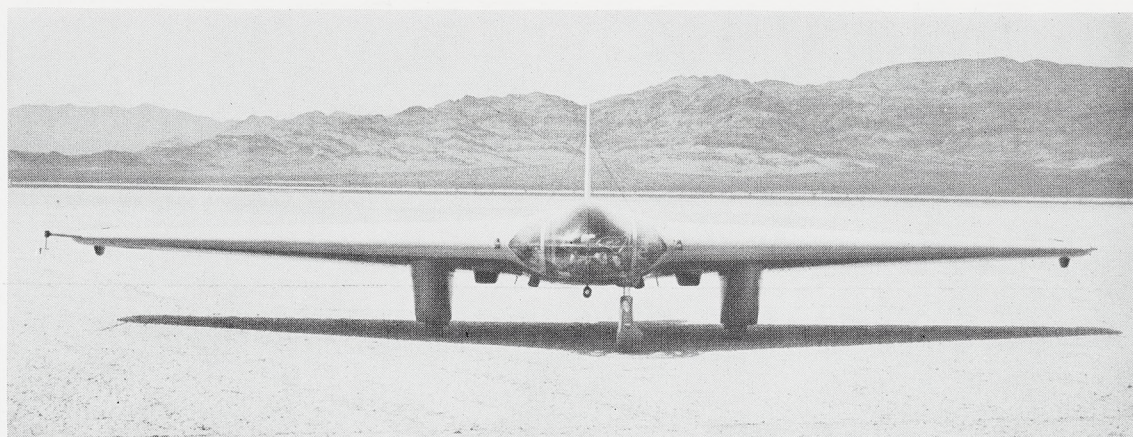
Northrop families are again invited to join the Los Angeles Chapter, Association of the U. S. Army, in its Family Fun Night at Disneyland event.

The date is Oct. 17; the time, 8 p.m. to 1 a.m. Tickets, available through all Northrop Personnel Activities outlets, sell for \$4.25 each. They are good for admission and unlimited use of rides and attractions, except shooting galleries.

New Honors



NATIONAL Junior Achievement Production Executive of the Year, Chris Ingram, center, is welcomed home by Northrop's Rolie Pontious, left, and C. N. Parker. Northrop sponsored young Ingram's entry in the competition.



FIRST MANNED ROCKET-POWERED VEHICLE—THE MX-324

Head-on view of Northrop-built vehicle above. Below are some of those who aided program, from left, unknown, Carl Hoffman, Captain Smith, Harry Crosby, J. K. Northrop, Don Smith, unknown, Tom Ruble, unknown, Jake Superata, Ed Lesnick, Al Nesshofer and Mel Slade.

Northrop Developed, Flew First Manned Rocket-Powered Vehicle 25 Years Ago

Through the marvel of satellite-relayed television, the whole world was an audience for the United States' latest manned rocket-powered flight, the highly successful lunar exploration of Apollo 11.

In contrast, only a small group of "in the know" men observed America's — and possibly the world's — first manned rocket-powered flight 25 years ago.

Northrop Corporation designed, built and flight-tested the vehicle used in this program.

The MX-324, also known as the Northrop Rocket Wing, flew under rocket power for the first time in July 1944 at Harper's Dry Lake, near Barstow. Because of strict military secrecy necessitated by World War II, the world did not hear of the exploits of the MX-324 until 1947.

Northrop built the MX-324 as one of a series of flying wings. It had a wingspan of 36 feet. The pilot flew from a prone position which provided a thinner air foil and enabled him to better withstand higher acceleration.

The MX-324 was powered by an Aerojet XCAL-200 rocket

motor. It burned monoethylalane, oxidized by fuming red nitric acid. It generated 200 pounds of thrust. (Apollo 11 cleared its launch pad under 7½-million pounds of thrust.)

Although several versions of the MX-324 were built and used in flight test efforts, only one vehicle was equipped with a rocket motor. The others were utilized in developing flight techniques.

Memories

Bob Catlin, Aircraft Division, was a leader in the Experimental factory where the MX-324 was built.

"The MX-324 was towed via a long cable into the air, then released to fly back to earth. In early tests we used an automobile as a tow vehicle, then a truck," Mr. Catlin recalls. "For the first powered flight, and subsequent ones, the MX-324 was towed to altitude by a P-38 fighter."

Hugo Pink, Aircraft Division, was then a test engineer. He recalls another little-known accomplishment of the test program.

"We employed the first use of telemetry with the MX-324, relaying, via radio, data gathered aboard the aircraft to recorders on the ground."

Bill Raikes, Ventura Division, was a mechanic on the MX-324 program, one of a handful of men who logged long hours toward its success.

"The fuel combination used represented a highly potent combination," he said. "We carried it in stainless steel barrels and always handled it very, very carefully."

Roy Wolford, Aircraft Division, was head of the Northrop Photolab and drew the assignment of recording flight test activities on film.

Well Covered

"The MX-324 was loaded aboard a flat bed trailer and completely shrouded for overland moves," he recalls. "These moves always came in the middle of the night. I don't know how much film I exposed on the program, but I photographed it from every angle on the ground and from the air."

Most of the Northrop men who were associated with the program have fond memories of the frequent presence of John K. Northrop, a company founder, at test efforts. They also speak highly of the two test pilots on the program, Harry Crosby and John Meyer.

John K. Northrop Named Honorary Fellow of AIAA

John K. Northrop, one of the founders of Northrop Corporation, is one of three distinguished aerospace figures to be honored Oct. 23 after being named Honorary Fellows of the American Institute of Aeronautics and Astronautics.

Also to be honored are Robert C. Seamans, Jr., secretary of the Air Force, and German rocket pioneer Hermann Oberth.

Honorary Fellows, by definition, are persons of eminence in aeronautics and astronautics.

Among the 32,000 members of AIAA, only 43 have been named Honorary Fellows. Only three Honorary Fellows are elected annually by Fellows residing in the United States.



DESERT SUN DICTATED CREW UNIFORM

Northrop MX-324 crew included, from left, Chuck Fitts, Red Howell, Don Mullet, Ralph Friesen, Gerald Shaw, Bill Tammietti, Fred Hayden, Tom Ruble, Bill Raikes, Bob Paisone, Jake Superata.

Environmental Health Lab Helps Everyone by Eliminating Hazards

Ordinary Industrial Hazards Reduced by Preventive Practices

Industrial hazards of varying degrees are present in any job, but at Northrop a group of men are constantly working to insure that they are eliminated or properly controlled.

This important job belongs to the Northrop Environmental Health department. Purpose of the department is to recognize, evaluate and control health hazards and in so doing it bridges the gap between the manufacturing areas and the Medical department.

The department is under the management of R. D. Thomas, chief health physicist. It comes under the direction of Dr. R. Krebsbach, manager of the Medical department and is organized as part of Industrial Relations. Assisting Mr. Thomas are Leo Vortouni, chief industrial hygienist, and Frank Badger, reactor health physicist.

"Conditions at Northrop have always matched or bettered those of the aerospace industry, but we do not con-

sider this sufficient," Mr. Thomas said. "Regardless of how good conditions may be, we want to make them better."

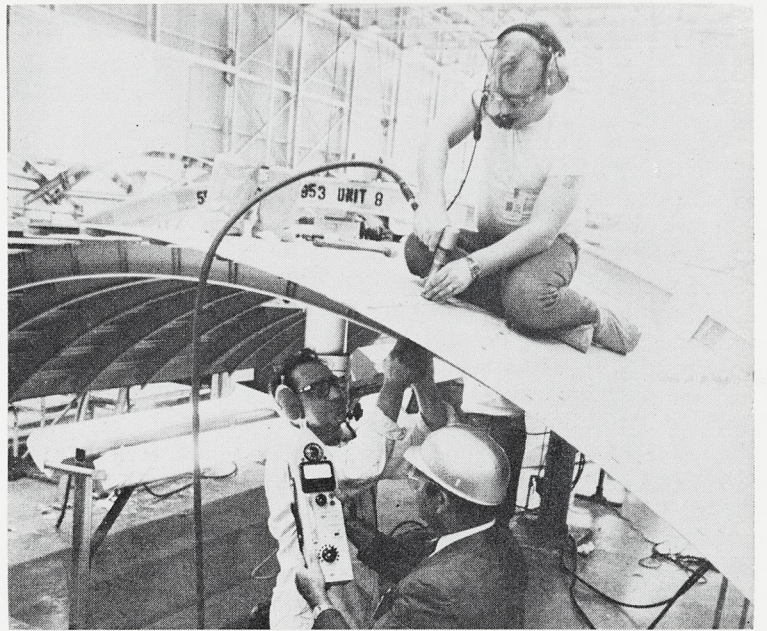
To help in this work the department has an Environmental Health Laboratory equipped for conducting basic research in health problems as well as for making routine analyses that range from biological specimens to environmental samples such as dust and possible radiation.

Since the department has the only capability of its kind in Northrop, its facilities are available on request to other divisions. As a part of their work, Environmental Health scientists monitor work areas, and take samples of air, dust, fumes, vapors and the like to insure that contaminants are not present in any harmful amounts.

The Environmental Health scientists also are vitally concerned with educating personnel to any possible environmental hazards and in suggesting better ways to work with toxic

materials. In this respect, they work closely with Northrop's safety engineers, administrators, design engineers to furnish technical support both for current and planned operations. New developments and advancing technology usually bring new problems and the laboratory is in a position to eliminate problems before they occur.

Much of the Environmental Health department's work is required by Federal and State regulations, but a large per cent goes beyond these requirements and is part of the Northrop policy to insure the best possible work environment.



NOISE LEVEL CHECKS

Made of riveting activities on the Boeing 747 production line at the Aircraft Division by Leo Vortouni.



SAMPLING FOR INDUSTRIAL DUST
Leo Vortouni checks work of Carl Peel at Ventura.

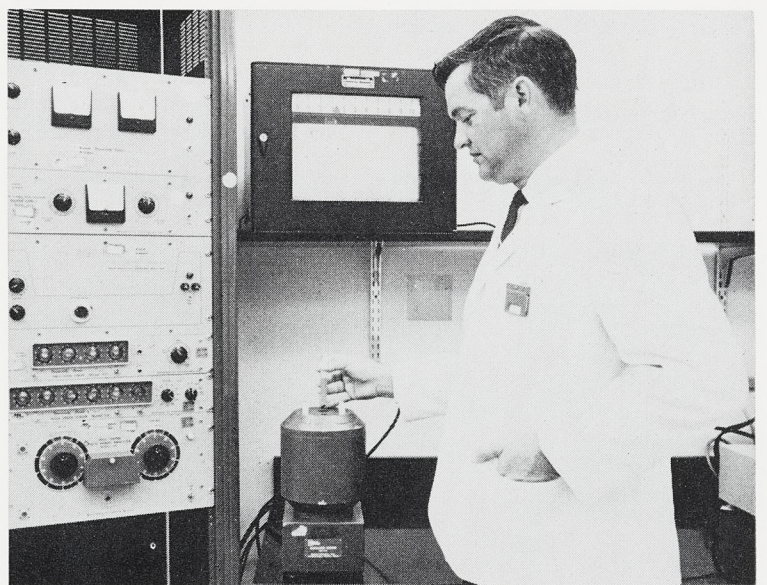


CHECKING EXHAUST VENTILATION FOR TOXIC VAPORS

Leo Vortouni, center, gives support to Electro-Mechanical Division. With him, Eddie Paul, left, and W. L. Scott.



QUANTITATIVE ANALYSIS
Is made in the laboratory by Frank Badger.



BOB THOMAS MAKES SPECTRAL ANALYSIS
Test checks peaks of gamma radiation in a sample.



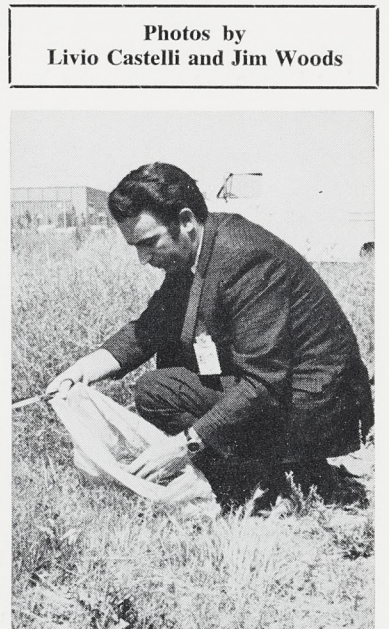
CHIEF HEALTH PHYSICIST BOB THOMAS

Checks to insure there are no leaks from X-Ray machine being used by Technician John Kavanagh at Ventura for quality control and non-destructive testing.



CHARTING SOUND SURVEY

Emily Cunningham, secretary, makes graphic chart to illustrate a sound survey conducted at the Santa Fe facility.



FRANK BADGER

Collects vegetation to check on contamination.

Photos by
Livio Castelli and Jim Woods

LAST STRETCH TOUGH

Bob Ringle Climbed Matterhorn to Rest

When Bob Ringle decided to climb the Matterhorn he wasn't so sure that he could make it—300 feet from the summit he was convinced of it.

"At the time I was so tired I didn't really know how close I was," he said. "All I wanted to do was rest, but when my guide told me we were only 300 feet from the top, I decided to go on since the top was a hell of a lot closer to a rest than the bottom."

Mr. Ringle, assistant to the manager of Marketing for the Electronics Division, made the treacherous climb while on vacation with his wife this year in Zermatt, Switzerland.

He said that his initial plans did not call for climbing the Matterhorn, but when a friend of his couldn't make it he hired his friend's guide.

Early Start

Mr. Ringle began the trek up the 14,740-foot Matterhorn at 3:30 in the morning. He and his guide made their way from the base camp (10,760 feet) with only a flashlight to guide them.

Three hundred feet from the camp they ran into the ascent face of the Matterhorn. The rest of the trip would be nearly straight up—4,000 grueling feet to the summit.

"There are no paths to the top," Mr. Ringle said, "only handholds and footholds. This wasn't too bad except that you have to keep climbing continuously so that you can return to the camp before noon."

After almost calling it quits near the peak, Mr. Ringle continued to the top with his guide. He only stayed there long enough to take a few pictures, then it was time to start down the mountain which would take another four hours.

Mr. Ringle admits that the route he took is by far the safest and easiest of the three trails available. One of the other trails takes three and one-half days round trip to the top, and the other one is almost inaccessible.

Mr. Ringle explained that anyone can attempt to climb the Matterhorn, "there are no restrictions set down by the Swiss government. You don't even have to have a guide, but it is a lot safer to have one."

Many persons have climbed the Matterhorn without a guide and several have made it to the top on the harder trails. But, then, many have not.

The week before Mr. Ringle made his assault, two persons were killed trying to make it on their own. Another week, not long ago, the mountain claimed 10 lives.

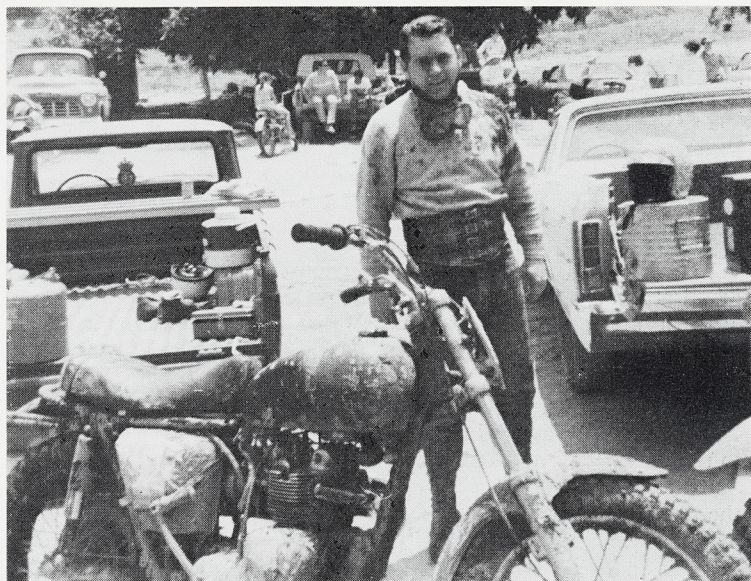
Other people planning to scale the Matterhorn have had second thoughts upon seeing the last 4,000 feet. Mr. Ringle said he remembers a group of young Mexicans who, upon seeing the Matterhorn, stayed at the base camp and sang "Granada."

When Mr. Ringle returned to the base camp he was too tired to sing, so he just drank some chicken soup and headed back to Zermatt for a good night's rest.



ATOP THE MATTERHORN

Bob Ringle stands on top of Matterhorn after grueling four and one-half hour climb. Cross in upper right of picture is memorial to four Englishmen who died after climbing the Matterhorn in 1865.



MUD AND FUN

Frank McNabb, Jr., was splattered after motocross race.

Mud, Spills And Fun Are Motocross Race Bonuses

Despite plowing through four miles of mud, taking four spills and plunging into a lake, Frank McNabb, Jr., thinks motorcycle riding is great fun — and safer than driving a car.

His claim about cycling safety extends only to racing and the tracks and courses are the only place he will ride a cycle. On city streets he sticks to a car and carries his cycle in the back. He feels cycles on the streets where automobiles travel are dangerous.

The dirt track is something else. "Oh, you take your spills," he said. "But the dirt is softer than asphalt. You just get up, shake the dust out of your goggles, kick the machine back in shape and go on."

Recently he won first place in the TT (Time-Trials) race in the 500 cc novice class and placed second in the over-all class. The race was the first event held on a new track recently completed at Saddleback Park, a well-known

motorcycle playground.

However, his current interest is motocross racing. Comparatively new in the U.S., this type of racing was imported from Europe. The course—a real trial for rider and cycle—is over unimproved terrain, mud and obstacles, with airborne jumps. Rough and exciting, it requires a special type of motorcycle. Mr. McNabb now uses a BSA one-cylinder motorcycle because it is more agile than the two-cylinder Triumph he formerly used for desert racing.

The longest race he has competed in was a recent 100-mile Grand Prix held in and around Elsinore. The eight-mile course was over the end of Lake Elsinore, over a mountain road and through the city streets. Four of the eight miles were over the not-so-dry lake bed which was reduced to a super-sloppy mud bath by the more than 1,100 racers. After three falls, he mud jammed his throttle, causing an unplanned detour into a rain-swollen stream feeding into the lake. Two spectators helped him and the cycle out of the water. He continued on and was well up with the leaders when he blew the engine only a half-mile from the finish line.

Speech Contest Staged by Two Northrop Clubs

The semi-annual "Tournament With the Belles" speech contest between Northrop Toastmasters 212 and Smoothsayers Toastmistress Clubs was held recently at the Western Ave. Golf Club.

Lois Paris and Norma Conrad were the main speakers for the Smoothsayers while Hank Greenberger and Roy Gordy represented the Toastmasters.

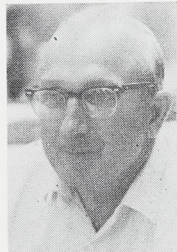
Trophies were won by Mr. Gordy, best speaker; Felix Dunnett, best table topics speaker; and Shirley Feenstra, best evaluator.

FOR BOAT OWNERS

Northrop boat owners have been extended a special invitation to participate in a basic seamanship and boat handling course being offered at two locations this month by the U. S. Coast Guard Auxiliary.

Each course meets one night per week over a 13-week period. One, opening Sept. 15, meets at El Segundo High School. The second, beginning Sept. 16, meets at Hawthorne Memorial Center.

OPINIONS, PLEASE—Who Do You Think Will Be in The World Series?



Mr. Crompton

Bob Crompton, Plastic Tooling, Ventura:

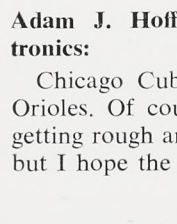
Baltimore, for sure, because they are so far in front that nobody will be able to catch them. And the New York Mets. I like the Mets because they have a good manager, they're a young team and they have lots of inspiration. They're New York's leading team now.



Mrs. Barrett

Millie Barrett, secretary, Ventura:

Well, I'm not much of a baseball fan, but I'd say Minnesota—because that's where I'm from, and the San Francisco Giants—because I don't like the Dodgers.



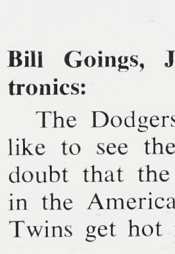
Mr. Hoffman

Adam J. Hoffman, project dispatcher, Electronics:

Chicago Cubs and, naturally, the Baltimore Orioles. Of course, those New York Mets are getting rough and might sneak in and take it all, but I hope the Cubs make it.



Mr. Hoffman



Mr. Goings

Bill Goings, Jr., electronics inspector, Electronics:

The Dodgers are my favorite team, but I'd like to see the Chicago Cubs get in. I don't doubt that the Baltimore Orioles will make it in the American League unless the Minnesota Twins get hot in the playoffs.



Mr. Goings



Mrs. Baughan

Rae Baughan, inspector, Aircraft:

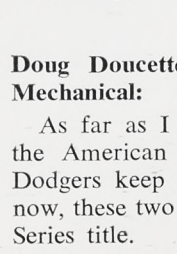
I like San Francisco so I think the San Francisco Giants will be in the World Series. I like Baltimore in the American League.



Mr. Glasser

Francis Glasser, trimmer, Aircraft:

It looks like Baltimore and San Francisco. They've both got good teams and tremendous hitting power.



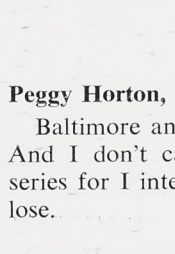
Mr. Doucette

Doug Doucette, stock clerk senior, Electro-Mechanical:

As far as I am concerned, the Twins have the American League sewed up, and if the Dodgers keep playing ball like they are right now, these two will meet head-on for the World Series title.



Mr. Doucette



Peggy Horton, Payroll, Electro-Mechanical:

Baltimore and Chicago are the sure winners. And I don't care which one finally wins the series for I intend to bet on both. Then I can't lose.



Mrs. Horton

Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale	
Truck, 1959 Chevrolet, 1/2-ton, w/Highway Cruiser camper, new 283 V-8 eng., \$900. 213-679-342.	A
Mustang, 1966, full power, V-8, auto. trans., \$1,350. 213-545-0101.	A
Volkswagen, 1950 bus, new shocks, tires, & int., w/out eng., \$325. 213-377-2160.	A
Ford, 1960, r/h, 6 cyl., stick shift, \$250. 213-670-0896.	A
Chevelle, 1966 Malibu, V-8, r/h, \$950. 213-674-8130.	A
Mustang, 1966, 6-cyl., auto., r/h, air, \$1,700. 213-675-6192.	A
Triumph, 1958 TR-3, h/top, needs right front end, \$100. 213-675-0597.	A
Chevrolet, 1964 Impala Super Sport, p/s, p/b, a/c, radio, 327 cu. in., 250 h.p., \$1,155. 714-828-3718.	A
Corvair, 1965 Monza, 4-spd., convt., \$850. 213-677-6246.	A
Station Wagon, 1965 VW, 1500S, \$1,195; 213-547-3746.	A
Corvette, 1959, '63 327 eng., fuel injector heads, cam, 4-spd., \$800. 213-373-2365.	A
Comet, 1964 Cyclone, 2-dr., h/top, r/h, chrome whls., V-8, auto. trans., take over 18 \$56.53 mo. pymts., \$1,017.64 bal. 213-835-0977.	A
Station Wagon, 1969 Toyota, heater, auto. trans., \$1,895. 213-774-0139.	A
Cadillac, 1962 sedan De Ville, full power, air, \$950. 213-326-0773.	A
Buick, 1961 Special, \$250. 213-379-6983.	A
Sunbeam, 1967 Tiger, hi-perform. 289 cu. in. V-8, 4-spd., AM-FM radio, \$3,300. 213-372-8669.	A
Pontiac, 1965 GTO, p/s, p/b, air, 4-spd., extras, \$1,200. 213-734-3536.	A
Mercury, 1966 Cyclone, V-8, p/b, p/s, \$1,650. 213-670-4643.	A
Dodge, 1968 Dart, 2-dr. h/top, V-8, p/s, \$2,250. 213-837-3707.	A
Volkswagen, 1963, w/sunroof, \$600. 213-675-1736.	A
Firebird, 1969, 350 cu. in., auto., many extras, \$3,200. 213-371-3403.	A
Mustang, 1965 289 V-8, 4-spd., \$1,225. 213-370-5175.	A
Volkswagen, 1968 sedan, \$1,550. 805-282-5846.	A
Corvette, 1965, 327, 4-spd., \$2,495. 213-639-6653.	A
Dodge, 1961 Senneca 6, r/h, new tires, \$495. 213-674-0852.	A
Ford, 1957 Fairlane, 2-dr., auto. trans., p/s, \$235. 213-376-9600.	A
Corvette, 1967, 427 eng., extras, \$3,200. 213-363-3843.	A
Porsche, 1959, \$1,950. 213-376-4287.	A
De Soto, 1952, 4-dr. sedan, 6-cyl., \$300. 213-670-1787.	A
Comet, 1964, 2-dr., 6-cyl. stick, r/h, air, \$325. 213-644-5303.	A
Dodge, 1966 Monaco 500, 2-dr. h/top, full power, console shift, a/c, \$1,395. 213-376-9875.	A
Volkswagen, 1960 sedan, AM-FM radio, new trans., \$600. 213-731-5297.	A
MGB, 1967 GT, wire whls., 23,000 miles, \$2,250. 714-644-2887, 213-329-2926.	A
Buick, 1967 Riviera G.S., 16,000 mi., other extras, \$2,700. 213-676-6980.	A
Chevrolet, 1964 Impala S.S., 2-dr., 4-spd. stick, \$800. 213-634-0869.	A
Valiant, 1963, 2-dr. h/top, 6-cyl. stick, r/h, \$475. 213-679-1606.	A
Volkswagen, 1959 bus, rbit. eng., \$450. 213-375-5856.	A
Cougar, 1967 390, V-8, a/c, power d/brakes, \$2,100. 714-595-8891, 213-670-6742.	A
Ford, 1954, 4-dr., \$135. 213-644-2020.	A

Household Items For Sale	
Dinette Set, chrome, Virtue Bros., table & chairs, \$35. 213-675-4156.	B
Desk-Room Divider, walnut, Danish modern, \$50. 213-395-1833.	B
Refrigerator, Frigidaire, cold pantry, \$95. 213-326-0694.	B
Rug, oval wool braid, 9'x12', beige, \$49.50. 213-861-6404.	B
Fireplace, electric, Traditional, never used, \$60. 213-328-3020.	B
Dishwasher, Sears, \$100. 213-675-6020.	B
Dining Room Set, modern, table, leaf, 4 chairs, china cabinet, credenza, \$125. 213-378-3529.	B
Bed, 3-pc. corner group w/bolsters, Nevamar tops, incl. table lamp, \$100. 213-326-7346.	B
Table, Ethan Allen, spoon foot, maple drop-leaf, Harvest-style, 44"x66", \$90. 213-371-4226.	B
Refrigerator, G.E., white, 1 yr. old, \$100. 213-676-4055.	B

Household Items For Sale	
Sofa Bed, Riviera, has storage compartment, \$50. 213-675-5978.	B
Bunk Beds, maple, dble. dresser, \$60. 714-528-9227.	B
Household Furnishings, incl. auto. washer, refrig., stove, other access., \$800. 213-581-8983.	B
Piano, upright, recently recond. & antique finished, \$185. 213-696-7529.	B
End Tables, 2, walnut finish, 2-dwr., \$20 ea. 213-541-3000.	B
Table, 48" round, Salem maple, 2 ext. leaves, \$35. 213-374-4703.	B
Range, Gaffers & Sattler, dble. oven, clock, less than 6 mos. old, avocado, \$250. 213-672-6874.	B
Oven, elec. Gaffers & Sattlers, bltin-type, auto. cooking, clock, timer, preheat light, bronze tone, \$50. 714-826-3631.	B
Dryer, elec., Westinghouse Space Saver, \$45. 213-377-7913.	B
Bathroom Sink, white, w/water faucets & medicine cabinet w/mirror, \$15. 213-423-1363.	B
Bed, dble., antique mahogany, Colonial design, \$22.50. 213-474-5726.	B

Miscellaneous For Sale	
Vacuum Cleaner, compact, w/access., \$80. 213-370-2640.	C
Wheels, Falcon & Mustang, 4 13" 5-bolt, 5 13" 4-bolt, \$3 ea. or \$10 set. 213-454-5198.	C
Differential Gears for Mustang, 3.5 to 1, & positraction unit, \$25. 213-676-8817.	C
Tape Recorder, Webcor, dual track & head, \$50. 213-345-3634.	C
Relaxacizor, w/attachments, \$75. 213-759-0493.	C
Tachometer, elec., self-contained, \$15. 213-377-7670.	C
Scrapbook, covers all space projects of U.S. & USSR, before first Sputnik to about 1964, \$300. 213-372-8618.	C
Skil Saw, 7/4" Craftsman, \$35. 213-754-1089.	C
Aquarium, 5-gal., filter & lights, \$15. 213-676-7269.	C
Band Saw, Shopsmith, grinder & access., \$200. 213-378-7389.	C
Motor, 1968 Johnson, 9 1/2 h.p., for boat, \$295. 213-675-6493.	C
Motorcycle, 1969 Yamaha, 2 cc MCYMI, \$500. 213-772-3677.	C
Mobile Home, 1964 Skyline, 54x10, in desirable park, extendo living rm. & 2nd bdrm., cpts., skirting, awning o/patio, \$4,995. 213-326-6176.	C
Camera, 35mm Exakta, 2 lenses, 12. sec. to 1/1000 sec. shutter spds., \$75. 213-327-8927.	C
Acreeage, Mojave County, Kingman, Ariz., approx. 1 1/3 acres, zoned commercial, \$3,500. 714-897-9407, 213-379-0437.	C
Travel Trailer, 20', 1969 Aristocrat, completely self-contained, used only 6 mos., \$2,700. 714-524-1753.	C
Saw Combination, Shopsmith, many access., \$100. 213-377-3487.	C
Acreeage, 2 1/2 acres, Antelope Valley, \$35 dn., \$35 mo., no int., \$3,450. 213-378-1026.	C
Mini Bike, Bonanza, 2 1/2 h.p. Briggs & Stratton eng., jack shaft & sprockets, \$85. 213-377-5414.	C
Hurst Kit, Mystery Shifter, for Chev., 3-spd., \$10. 714-838-7161.	C
Relaxacizing Machine, Stauffer-type, heater, timer, \$100. 213-322-4166.	C
Bellows, dble. track, & focusing rail for Exakta camera, \$25. 213-835-3869.	C
Pistol, S&W, .44 magnum, \$125. 213-397-4886.	C
Violin, bow & case, half-size, \$30. 213-329-3157.	C
Sailboat, 20' sloop, needs work, fibreglassed hull, \$250. 213-329-4090.	C
Amplifier, Eico stereo, FM stereo tuner, \$125. 714-871-2912.	C
Motorcycle, 1966 Triumph, 650 cc, \$850. 213-372-4797.	C
Motorcycle, 1967 Honda Scrambler, 2,000 mi., \$475. 213-379-5701.	C
Acreeage, 10 acres, near lge. development, \$750 dn., \$75 mo., \$7,500. 714-846-2244.	C
Boat, inbd.-outbd., 1968 Johnson Seaport 22, w/Johnson trailer, 155 h.p. Buick V-6 eng., all avail. equipment, \$4,500. 714-826-4031.	C
Motorcycle, 1966 Honda Super Hawk, 32 h.p., 338 cc, \$375. 213-547-4141.	C
Lot, Lake Arrowhead, partial lake view, u/ground utils., roads in, approx. 80'x130', 7% int., \$12,500. 213-326-8357.	C
Radio, Craftsman AM-FM w/AFC control, hi-fi amp., spkrs., Webcor record player, walnut cabinets, \$50. 213-675-2514.	C
VW Body, 1968, new int., radio, other extras, \$900. 213-324-3919.	C
Stencil Duplicator, ditto type, liquid, \$35. 213-670-3729.	C
Bicycle, 28" girl's 3-spd., Schwinn, \$35. 213-770-0566.	C
Motorcycle, 1969 Yamaha Scrambler, 250 cc, \$650. 213-532-4184.	C
Rifle, mod. 98 Mauser, 8mm sporterized, 4X scope, ammo & brass, \$45. 213-433-3584.	C
Drafting Table, deluxe model Post w/stool, lamp, \$200. 213-370-8660.	C
Golf Clubs, 7 irons, 3 woods, refinished, \$35. 213-860-7973.	C
Surfboard, 9'8" Ramsey Jay, \$35. 213-377-8508.	C
Motorcycle, Honda, 150 cc, \$225. 213-325-3057.	C

Miscellaneous For Sale	
Home, Thousand Oaks Lynn Ranch area, 4-bdrm., 2 1/2 baths, 1/3 acre lot, landscaped, owner will take 2nd t.d., \$45,500. 805-498-3248.	C
Stallion, quarter horse, 3 yrs. old, green broken, \$175. 213-754-4178.	C
TV, radio console & record player combination, Packard Bell, maple finish, \$40. 213-428-2121.	C
Home, 2-bdrm., convt. den, 3 baths, 2 f/places, 2,800 sq. ft., 1 blk. from ocean, P.V. Ests., \$525 mo. or \$72,000. 213-644-8385.	C
Mobile Home, 1965 Angelus, dble. expando, 20'x55', Arctic cooler, carport, stor. shed, cement block skirting, in adult park, \$2,500. 714-839-6651.	C
Bicycles, boy's Schwinn Sting Ray, \$15 ea. or sell sep. 213-328-6662.	C
Razor, Lady Schick, never used, \$7.50. 213-675-2005.	C
Typewriter, Smith Corona, portable, w/travel case, \$45. 213-832-3502.	C
Toilet Training Chair, \$2. 213-376-4831.	C
Camping Stove & lantern, Thermos M8429 & B8321, \$30 or sell sep. 213-644-7870.	C
Cartop Carrier, 3'x4x16" canvas, \$7.50. 213-675-0788 days.	C
Engine, 1955 Chev., auto. trans., \$35. 213-675-2159.	C
Extractor System for VW, fits all 1500 cc, 1967, bus, sedan & Ghia, made by Scat Interp, \$35. 714-846-8449.	C
Tent, 9'x12' Coleman, 2-burner Coleman stove, thermos ice chest, \$65. 213-326-6657.	C
Chord Organ, Silvertone, \$100. 213-328-4619.	C
Ice Skates, girl's, white figure skates, little used, size 5, \$15. 213-375-9689.	C
Typewriter, Underwood elec., Scriptor, metal stand, \$150. 213-782-6869.	C
TV, color, RCA, cabinet, 21" screen, \$200. Box 1701.	C
Furnace, Chrysler Air-Temp, gas, forced air, 80,000 btu's, 51" high, \$75. 714-529-8082.	C
Home, Westchester area, 2-bdrm, 1 bath, cpts., dps., \$23,500. 213-672-9278.	C
Pups, Great Dane, fawn, 6 wks. old, AKC, \$125 female, \$175 male. 213-664-4083.	C
Ham Station, complete, beam, Eico 753 w/power supply, mike, spkr., \$130. Box 1702.	C
Toy Box, 3' long, \$10. 714-531-4958.	C
Lots, 2, both lake front on Lake Elsinore, \$16,500 or sell sep. 213-379-2554.	C
Surfboard, G & Smith, w/racks & wet suit, \$65 or sell sep. 213-670-6139.	C
Motorcycle, 1965 Mustang trail machine, less than 25 mi., \$275. 213-867-5809.	C
Vacuum Cleaner, tank-type G.E., w/attachments, \$15. Box 1703.	C
Wedding Gown, veil, Chantilly lace, sweetheart neckline, long sleeves, \$40. 213-894-3864.	C
Mail Trucks, 2 3-whl. Cushman, 18 h.p. twin cyl., gas eng., \$100 ea. or \$175 both. 714-842-1169, 213-327-2939.	C
TV, 17", portable, b&w, \$40. 213-671-0925.	C
Fan, 36" 4-blade ceiling-type, & fittings, never used, \$37.50. 213-328-0887.	C

Wanted to Buy	
Engine Lathe, 9"-12" w/tooling, for home use, Craftsman, Logan. 213-293-5827.	D
Rocking Cradle, maple, for small child. 213-324-6770.	D
Bicycle, Derailleur. 213-372-8685.	D
Jig Saw Table, #U-2309 for Black & Decker saw & bench drill stand for 3/8 drill U225-2. 213-831-3938.	D
Carburetor, 4-bbl., intake manifold for 140 h.p. Corvair. 213-371-7382.	D
Turn Signal, universal, for Jeep. 213-677-7932.	D
Wonder Horse for child up to 6 years of age, reasonable. 714-522-5909.	D
Bicycle, 3-wheel, geared, good condition. 213-375-5364.	D

For Trade	
Station Wagon, 1967 Ford, 10-pass., a/c, full power, 390 eng. trade for transportation car. 213-675-6186.	E

Free (To Be Given Away)	
Fill Dirt, clean, approx. 20 yds., free delivery to convenient locations in Hawthorne area. 213-676-5814.	F
Kitten, solid gray, weaned, needs good home. 213-377-1094.	F

Rentals Offered	
Working mother w/20 mo. old girl will share 3-bdrm., 2-bath apt., w/female & baby, \$80 mo. 213-379-9047.	G
Cabins, Lake Gregory & Crestline, sleeps 6, \$25 w/ends; \$60 wk. 213-391-2040.	G
Cabin, Moonridge, Big Bear Lake, sleeps 10, \$40 w/end; \$85 wk. 213-839-3279.	G
Apt, deluxe 2-bdrm., 2 baths, completely furn., Yucca Valley Country Club, \$22 w/end w/rates. 213-375-7265.	G
Home, ocean front, pvt. beach, L.B. Marina, f/place, lge. sun deck, encl. yard, patio, cpts., 2-bdrm., 1 bath, furn. or unfurn., \$350 mo. 714-431-2625.	G
Cabin, Big Bear Lake, \$30 w/end. 213-867-0662.	G

Child Care	
Child Care offered, my home, infants to 1 year. 213-644-7578.	I
Child Care offered, my home, Redondo Bch., lunches, fenced yd., gym set. 213-542-4619.	I
Babysitting, my home, Lakewood Gardens area. 213-633-1717.	I

Rides and Riders	
Rides Wanted	
7:30 a.m. — 4:15 p.m.	
Hawthorne Blvd. & Grevillea, Inglewood. Need ride very badly. Irene McCarthy, Aircraft ext. 5041, 213-672-7506.	
3 p.m. — 11:45 p.m.	
Simi to Hawthorne. Jack J. Serrano, Elec. Haw. ext. 677, 805-526-7532.	
Rides Offered	
3 p.m. — 11:45 p.m.	
Simi to Hawthorne. Jack J. Serrano, Elec. Haw. ext. 677, 805-526-7532.	

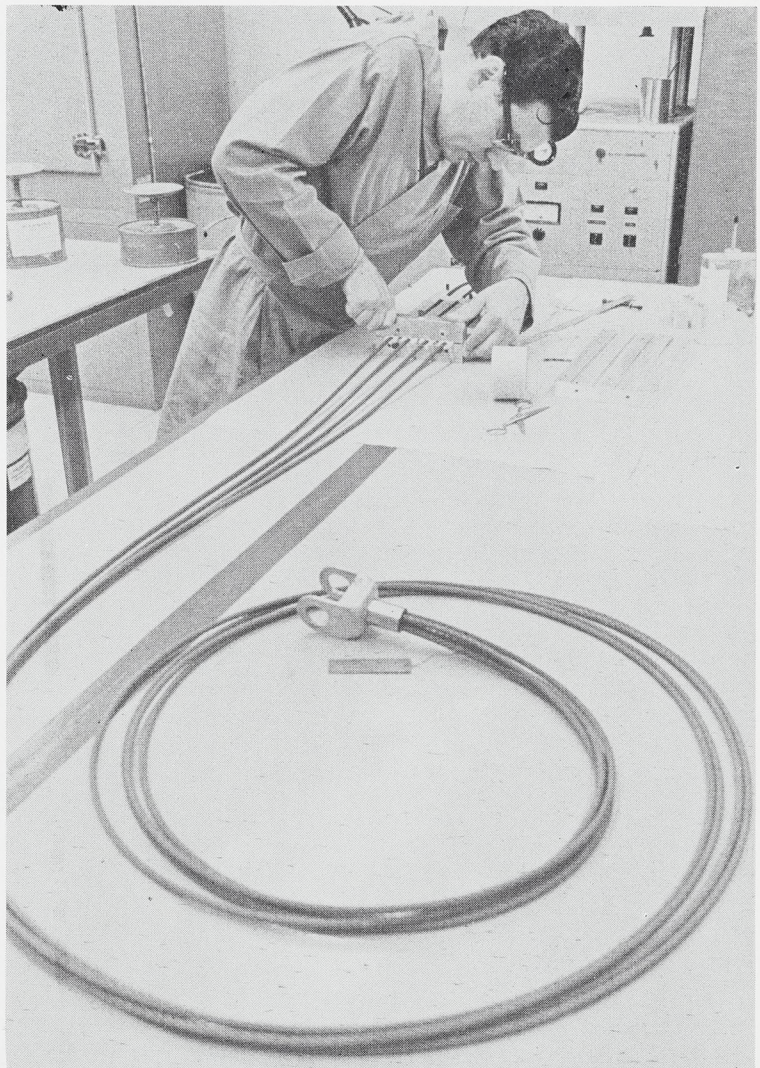
Personals	
Flying to Lake Powell, Monument Valley & Canyonlands Nat'l Park, Oct. 4, 5, 6, can take 4 more persons, share expenses. 714-847-2648.	
My heartfelt thanks & deep appreciation to my fellow workers in Tooling & Prod., 2nd shift, for the farewell party upon my retirement. OLLIE L. DIRRIG.	
Deepest thanks to all of you for the kind expressions of sympathy in the loss of our son, Steve. NORM & MONA SMITH.	
I would like to thank my many friends & co-workers for their expressions of thoughtfulness, kindness & consideration upon my retirement. PAUL W. SANDERS.	
Flying to east coast in Aero Commander for 1 week during Oct., riders share expenses. 213-671-0116.	
I wish to thank everyone for the cards, flowers & kind messages received while I was in the hospital & recuperating at home. GERTRUDE WEINSTEIN.	
Thanks for the party, gifts, the memories & good wishes. JACKIE BRENCHEY.	

For Sale or Trade	
Camper, 1966 Travel Queen, 10 1/2' long, propane refrig., \$1,000 or trade for 18'-21' camper trailer. 213-944-3754.	
Volkswagen, 1968 fastback, \$1,700 or trade for '66 or '67 Olds Cutlass. 213-534-3410.	
Station Wagon, 1969 Land Rover, long whl. base 109, fact. special w/many extras, incl. 6-cyl. off-road eng. & o-size tires, \$4,200 or consider transportation car in trade. 213-545-6719.	

NORTHROP MEN IN TOP POSTS

Northrop Corporation men now hold two of the most important offices in the American Society for Non-Destructive Testing. Dan O'Halloran, Aircraft Division, is the national president. Roy Wolford, Aircraft Division, recently was installed as chairman of the organization's Los Angeles section.

Vital Apollo Connection



WORKING WITH APOLLO riser line cables is the responsibility of Frank Balasz at the Ventura Division. The steel risers, as they are called, link the shroud lines from the three main parachutes to the Apollo space capsule.

Six Northrop Secretaries Back Course

Six Northrop secretaries are members of the Airborne Chapter of the National Secretaries Association which is co-sponsoring a review course for the professional designation of Certified Professional Secretary.

The classes will be offered at Westchester Community High School, 7400 West Manchester Avenue, beginning Sept. 16, according to Northrop Ventura Secretary Jaddis Martin, chairman of the event for the chapter.

Others

Other Northrop secretaries who are members of the Airborne Chapter of NSA are Mattie Lee Sherburne and Joyce Carver, Corporate; and Carol Clement, Anne Fitzgerald and Verlin Seaman, Aircraft.

Main purpose of the review course is to prepare secretaries for the examination qualifying them for the coveted CPS designation.

Subjects to be covered are business administration, secretarial procedures and skills, secretarial accounting, business law, and human relations. There is a nominal tuition fee.

Schedule

Classes will be each Tuesday from 7-9:30 p.m. through April 28, 1970. First class will meet at the school's library and enrollment may be done at the time.

Further information may be obtained by calling Mrs. Martin at Ventura, ext. 553, or by calling the school, 670-0443 in Los Angeles.



HELPING FLIPO
Debra Hand lends hand to help clown blow balloons.



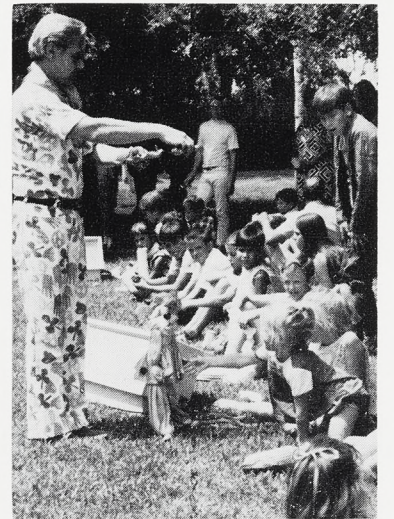
THE DAY IT RAINED CANDY!
Prizes were awarded to children who collected most sweets.

Fun and Frolic At the NRC Family Picnic

Swiss Park, Duarte, Aug. 23



THE LADIES PUT THEIR BEST FOOT FORWARD IN THIS CONTEST
The winners were those who could kick their shoes the farthest down the field.



LITTLE FRIENDS
The Bob Baker puppets make friends with the children who attended the Northrop Family Picnic. It was an unusual show. Act was typical of a number of entertaining activities tailored to the young of all ages.



SOME JUST TOOK IT EASY!
From left, Ann Dean, Lindy Dean, Jerry Kocourek, and Elinor Scarsdale.



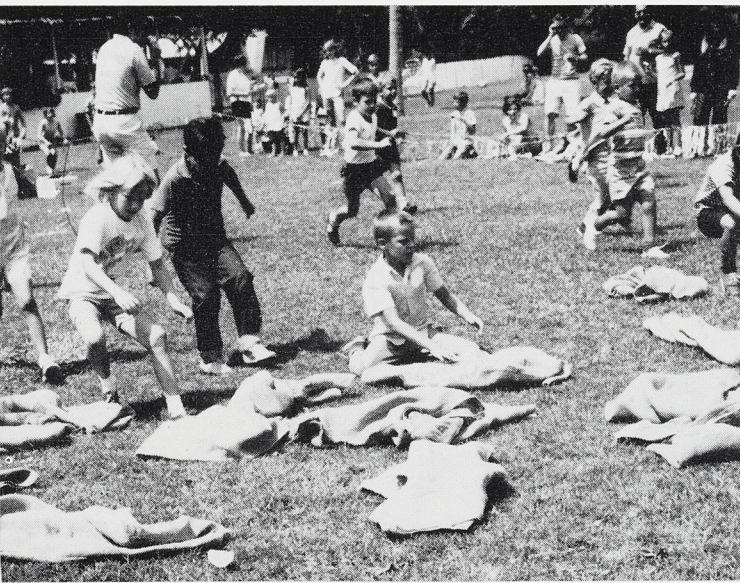
NO LUCK
Penny Walther's only reward in pie-eating contest was a smeared face. Others received prizes for the event.



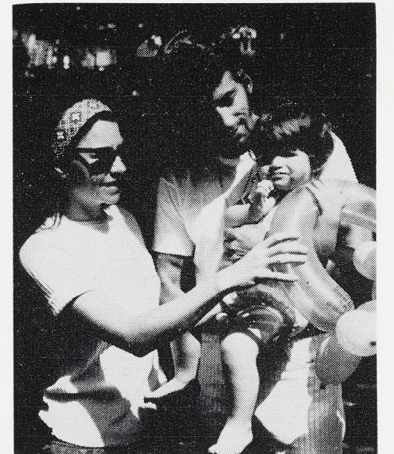
GUESSING HOW MANY BEANS
From left, Marianne Saavedra, Dawn Lind, Debbie Dunn and Sally Saavedra.



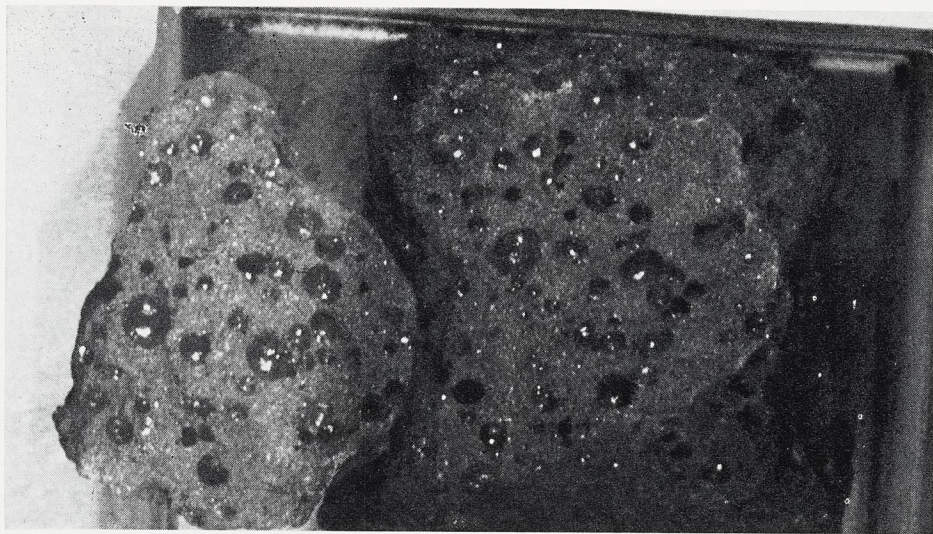
HE'S ALL WET
Bob Tallman is splattered by wife, Jerrie, in bottle-throwing contest.



HITTING THE SACKS
Children race to grab sacks for the sack race.



SATISFIED
You can have the rest. Michele shown with mother and dad, Joan and Jerry Tallman, is satisfied with her balloon. Clowns delighted youngsters with balloon antics.



MOON ROCKS IN NASA'S LUNAR RECEIVING LAB SHOW UNUSUAL BEAD-LIKE FEATURES

NORTHROP NEWS

ELECTRO-MECHANICAL DIVISION

Northrop Corporation, Beverly Hills, California

Vol. 27, No. 18

September 24, 1969

Scrap Saver Tops Ideas For Month

Marjory Y. Beach, Page Court, was the top suggester this month with an idea that helps scrap avoidance.

Her idea proposed mounting deflector rails on work tables to divert loose or rejected items to an accumulation box for later disposition and reclamation. Adoption of Mrs. Beach's technique has essentially eliminated the problems of floored hardware and table top clutter. She received a suggestion award of \$120.

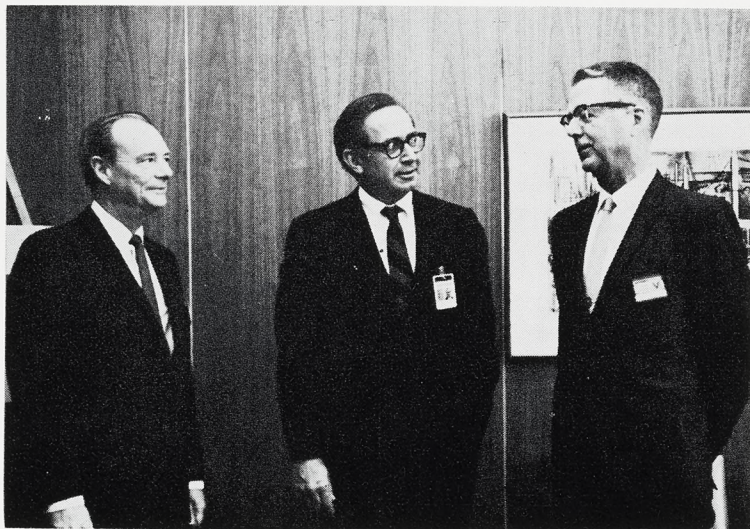
Mitchell A. Labuda, Machine Shop, received the second highest award of the month, \$114. He proposed substitution of a special set of fan jaws to hold a heat treated part without deforming it as it turned. This has greatly reduced the scrap rate on this part and increased production.

A \$104 award went to Otto Froehling for his suggestion which has improved gage longevity and reduced replacement and repair costs. Prior to his suggestion, hole attachments on certain types of gages were being damaged or knocked out of adjustment because of (See SUGGESTIONS, page 6)

Goodby Party



TOM QUAYLE, who recently retired as vice president and manager of the Anaheim department, cuts the goodbye cake at the retirement party given for him at the NRC Clubhouse. Helping is Secretary Dorothy Moore. Mr. Quayle was the first Northrop employee to serve 30 years with the company.



GENERAL DYNAMICS/POMONA VISITORS
R. M. Kemp and C. D. Perrine, Jr., with Frank Lynch, center.

General Dynamics ASMS Officials Visit Division

Top executives for the General Dynamics Advanced Surface Missile System (ASMS) visited the Electro-Mechanical Division, Thursday, Sept. 11. They were C. D. Perrine, Jr., executive vice president, R. M. Kemp, ASMS program manager, and J. F. Muse, ASMS marketing manager.

The visitors were welcomed by Frank W. Lynch, vice president and general manager, Electro-Mechanical Division, and members of his staff, R. C. Dix, ASMS program manager; W. B. Simicka, manager, Technical department; D. T. Chung, manager, Automation Systems; and Mel Ventura, manager, Automation Systems Marketing.

The Electro-Mechanical Division is a member of the General Dynamics ASMS team which ranks among the most qualified in the aerospace and electronics industries. Team members are General Dynamics/Pomona Division with responsibility for the Advanced Missile System and over-all system management; Hughes Aircraft Company's Ground Systems group which is

responsible for the Phased Array Radar; Sperry Rand Corporation's Univac Federal Systems and Sperry Gyroscope Division for Data Processing and Fire Control; and Northrop Electro-Mechanical Division which has responsibility for Integrated Maintenance Monitoring Systems.

ASMS will be the first totally digital shipboard missile system with unmatched speed, availability and firepower. Completely integrated, ASMS will include missiles, multi-weapons launchers, digital computers, high speed multifunction fixed Phased Array (See ASMS, page 6)

Lunar Receiving Lab Tests Reveal Secrets In Rocks from Moon

Secrets of the moon are being revealed by studies conducted in the NASA Lunar Receiving Laboratory on rocks brought back to earth by the Lunar astronauts.

The Lunar Receiving Laboratory is directly supported by personnel of Brown and Root-Northrop, a cooperative venture of Brown and Root, Inc. and Northrop Corporation.

BRN personnel are assisting NASA investigators by preparing the rocks for the exhaustive testing being given them by scientists.

Investigations to date have failed to detect any evidence of life in the rocks and soil of the earth's satellite, or any fossils that would indicate that life ever existed on the moon.

Among the discoveries are that lunar rocks and earth rocks are chemically similar, and that the lunar rocks are as much as 3.3 billion years old. This gives some support to the theory that the earth and moon were created at the same time.

Glass Balls

One of the most unusual discoveries was the presence of shiny glass-like spheres about 1/150th of an inch in diameter. These were embedded in the lunar soil and are widely distributed. Scientists working on the rocks have theorized that the beads, unlike anything found on the earth, were formed as a result of meteor strikes. Material vaporized by the terrific concussion condensed and fell back to the lunar surface as glass-like balls.

BRN personnel aided in these investigations by being the first to open the boxes of moon rocks. They did classification and splitting of the lunar samples, pre-

paring them for transportation where they will later be sent throughout the world for study by scientists.

The Brown and Root-Northrop joint venture's Lunar Receiving Laboratory is under the Electro-Mechanical Division's Northrop Support Operations department, managed by George N. Mangurian.

Plant Engineering Is New Dept. Title

Recent realignments in the Electro-Mechanical Division organization has brought two important changes to Industrial Engineering, according to M. E. Skilling, chief plant engineer.

The department has been redesignated Plant Engineering and Maintenance. Methods engineering and factory layout, formerly done by the department, has been transferred to Manufacturing Engineering. It is headed by Frank Merrell, reporting to Department Manager Tom Barry.

In another change, Property Control, Jack Jones, supervisor, was transferred to Plant Engineering and Maintenance from the Finance department.

Navy Amphibious Force Officers Confer On Teams



COMMODORE JOHN LA CAVA, Jr., USN, commander of Amphibious Squadron Five, discuss possible application of TEAMS (Test Evaluation and Monitoring System) on U. S. Navy Amphibious Force Ships. Commander LaCava and members of his PHIBRON-FIVE staff visited the division Sept. 10. Pictured above, from left, Peter J. Leibert, TEAMS project engineer; W. C. Patterson, TEAMS applications engineer; Commander LaCava and Lt. Commander Gerald Sobieck, PHIBRON-FIVE, logistics officer.

ODOM TO ADDRESS AIAA ANNUAL MEET

P. R. Odom, Northrop Support Operations, Huntsville, Alabama, will be one of the speakers at the American Institute of Aeronautics and Astronautics annual meeting and technical display at the Anaheim Convention Center Oct. 20 through 23. Mr. Odom will take part in a session on unmanned spacecraft missions and systems.

Welko Gasich Is Elected AIAA Fellow

Welko E. Gasich, Ventura Division general manager, has been elected a Fellow of the American Institute of Aeronautics and Astronautics.

AIAA Fellows are "persons of distinction in aeronautics, astronautics or hydrodynamics who have made notable and valuable contributions to the arts, sciences or technology" of those fields, AIAA President Ronald Smelt said in New York.

Among the 28 other 1969 AIAA Fellows elected by the scientific group's board of directors is Apollo 9 Commander Frank Borman. John K. Northrop, founder of Northrop Corporation, was named an Honorary Fellow.

Mr. Gasich is being honored for his "especially notable contributions in the design and development of sophisticated aircraft," Mr. Smelt said.

Mr. Gasich holds several patents. He is a co-holder of design patents for the Northrop-built T-38 supersonic jet trainer and F-5A multipurpose jet fighter.

He has been Corporate vice president and general manager at the Ventura Division since July 1967 when he was promoted from the post of vice president, Technical, and assistant general manager at the Aircraft Division. Mr. Gasich has been with Northrop since 1953.

DO THE IMPOSSIBLE

Korean Maintenance Men Are Tops

A Republic of Korea F-5A, thought to be damaged beyond repair, has been put back into commission through the dedicated hard work of Korean personnel of the Taegu Maintenance Depot. Orville L. Beck, Northrop Field Service representative in Korea, reported details.

Mr. Beck said this was the first time such extensive repairs had been done on a Northrop F-5A in the field. It proved that ROK maintenance is equal to any in the world. The work included repairs to the midsection fuselage, wings, tail assembly and some 30 other parts.

The successful work was at-

NORTHROP NEWSMAKERS

R. L. Swan, Aircraft Division, has written two papers, "A New Tapered Anechoic Chamber Antenna" and "A Combination Localizer, VOR, and Glideslope Antenna" for presentation at the 19th annual USAF Antenna Symposium.

Frank Smith, Corporate office, has taken part in a two-part seminar (at Berkeley and Los Angeles) sponsored by the Western Management Association and the California Personnel Management Association. Mr. Smith discussed "Keeping Control of Worker Interest and Morale."

K. C. Wu, Aircraft Division, has prepared an article, "Weld Heat—Affected Zone of Ti-679," for publication in the Metal Construction and British Welding Journal.

P. T. Wooler, Aircraft Division, presented a paper on "Development of an Analytical Model for the Flow of a Jet into a Subsonic Crosswind" at a NASA Symposium. Mr. Wooler's paper also will be published in a special NASA publication.

MANAGEMENT CLUB SETS BIG SOCIAL

Members of the Northrop Management Club, Aircraft Division, and their guests will gather at the Regency Ballroom, Airport Marina Hotel, Oct. 4 for their annual dinner dance.

Billed as the "Harvest Moon Ball," the affair will feature the music of Manny Harmon and his Orchestra.

Deadline for ticket reservations is Friday, Sept. 26.

WARD DENNIS TAKES SCOUTS TO HAWAII

Ward Dennis has led eight boys from Explorer Post 431, including his son Patrick, on a 10-day surfing and camping trip in Hawaii.

The August trip included some of the "name" beaches in the Islands, such as Sunset and Makaha. The scouts picked up 10-12 foot waves at Ala Moana where "they just went crazy," said Mr. Dennis.

Mr. Dennis is vice president of Forward Planning.

Overseas Visitor Program Lauded By Government

Aircraft Division Industrial Training, headed by John Fink, has been awarded a Certificate of Cooperation by the Agency of International Development of the Department of State.

The certificate was awarded "for the exceptionally high quality" of the technical programs which Industrial Training has arranged for overseas visitors studying industrial techniques in this country.

The last A.I.D. participant at Northrop was Srishchandra Arya, an Indian engineer, who studied aircraft production methods for a month in 1967 at the Hawthorne facility.

The award was made on the recommendation of the Bureau of Apprenticeship and Training, Division of International Activities of the Department of Labor.

Air Force Officers Begin Industrial Training Stint

Two U.S. Air Force officers, Major Lawrence G. Michalove and Captain Gerald L. Francis, have begun a 10-month specialized training program with Northrop Corporation.

The officers are engaged in the USAF Institute of Technology Education With Industry program, an executive development effort designed to give them a firsthand opportunity to observe industrial management practices at all management levels.

Over the next 10 months the future procurement officers will study the activities of various elements of all Northrop divisions and subsidiaries, as well as the Corporate offices.

Major Michalove is a graduate of the U.S. Military Academy who holds an M.S. degree in

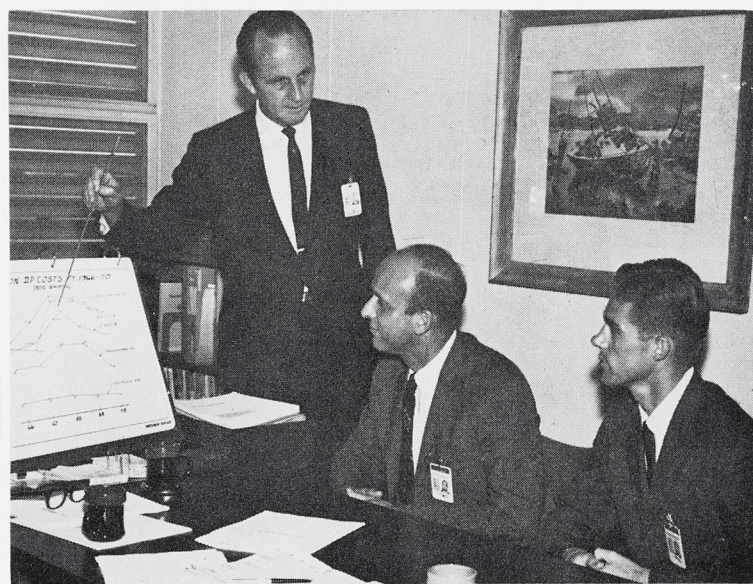
Statistics from Stanford University.

Prior to reporting to Northrop, Major Michalove was an instructor navigator at Hickam AFB, Hawaii.

Captain Francis holds a B.S. degree in Industrial Management from the University of Akron, Ohio. His latest duty assignments have been as chief, Operations branch, Procurement Division, at K. I. Sawyer AFB and chief, Procurement Division, at Clinton-Sherman AFB.

Northrop is now entering its 15th year of participation in the Education With Industry program. A total of 41 USAF officers have trained with Northrop during this period.

Jim Anthony, Aircraft Division, is coordinating the Northrop training programs.



EDUCATION WITH INDUSTRY OFFICERS
Northrop's Elmer Davis, left, discusses costs with Major Lawrence G. Michalove, center, Captain Gerald L. Francis.

Four DOD Officials Given Aircraft Division Briefing

Four major Department of Defense officials have received a briefing on the Aircraft Division's materiel, cost management, purchasing programs and systems related to government contracts.

Hearing talks by five Northrop executives were Navy Capt. H. G. Silliman, Division assistant, Management Systems, OASD (Controller); W. C. Tayloe, staff director, Office of the Assistant Secretary of Defense (Installations and Logistics); Geraldine W. Asher, assistant, Special Cost Studies, OASD and J. T. Regardie, program manager, Defense Contract Audit Agency.

Presentations were made in the day-long session by Robert M. Cooper, manager, Materiel department; William J. Schmidt, manager, Materiel-Administration department; Marley H. Lafferty, manager, Materiel Control; Maxwell G. Pellerin, executive assistant to Mr. Cooper; and C. J. (Chuck) Rennie, manager, Materiel Cost Accounting.

Also sitting in on the sessions were Col. R. P. Fuqua, Air Force plant representative at the Aircraft Division; H. T. Schump, Air Force contracting officer, Aircraft Division; and H. D. Parsons, Defense Contract Audit Agency resident auditor.

Capt. Silliman and his team

were on a West Coast tour of defense contractors' facilities to familiarize themselves with purchasing and material procedures in order to determine contractors' ability to comply with the "Applied Direct Cost" concept contained in the government's latest requirement, COST/SCHEDULE CONTROL SYSTEMS CRITERIA (C/SCSC).

The meeting was conducted by G. L. Warrick of the Corporate office who made the arrangements for the visitation.

GEM, MINERAL CLUB PLAN SHOW

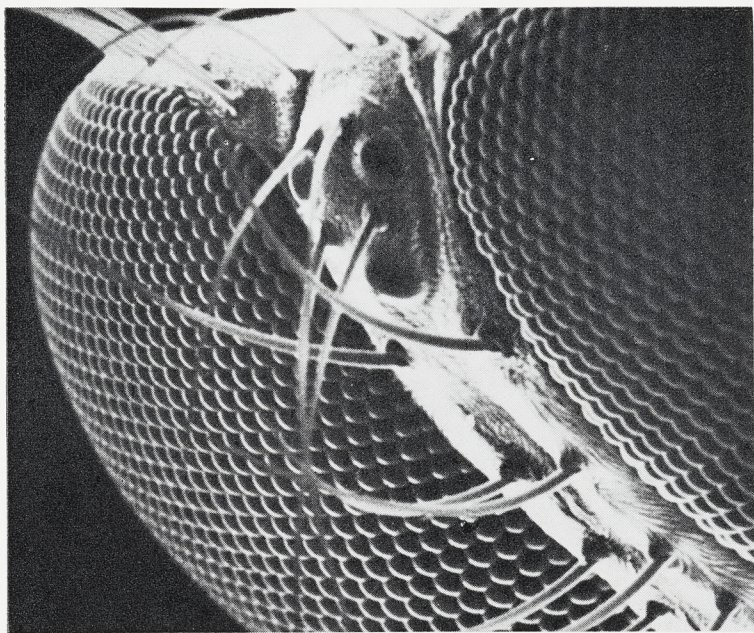
The Northrop Gem and Mineral Club has extended a special invitation to all Northrop personnel to join in the group's tenth annual show, "Wonders of Gemland."

The show is slated for Oct. 18 (10 a.m. to 10 p.m.) and Oct. 19 (10 a.m. to 6 p.m.) at the NRC Clubhouse, Hawthorne. There is no charge for admission.

Exhibits by club members and guest exhibitors will present the latest in lapidary hobby activities. Dealers will display their wares. Demonstrations will be conducted and a film presented. Door prizes will be presented.



F-5 FOLLOWING RESTORATION
Northrop's Orville L. Beck stands with, from left, Airman Lee Sang-ho, MSgt. Kim Chang-hwan, Captain Beck Tae-son before damaged F-5 was put back into service.



FLY ANTENNAS AND EYES

This view shows regular arrangement of eye cells of common house fly captured in the lab.

Cyclist Shys Away From Competition With Tanks

Canadian bicycling champion Barry Harvey is telling his many Northrop acquaintances of a cycling meet in Czechoslovakia that ultimately led to an "unbelievable" exposure to tanks, mobs, and violence.

Mr. Harvey, a representative of Canadair, Ltd., manufacturer of the CF-5, started his international adventure in July when he won Canada's 1,000-meter bicycle sprint event for the third straight year.

Because he was also runner-up by half a second in the 1,000-meter time trial event, Canadian officials named him captain of a four-man Canadian team to compete in the world championships at Brno, Czechoslovakia.

Although the team didn't finish as highly as it hoped, they did finish tenth in the world, recording a time approximately 25 seconds faster than any previous Canadian team and there was plenty of excitement between events.

Added Event

The Czechs, it seems, were planning a non-violent demonstration on the first anniversary of the Russian "invasion" of their country.

"We were all loaded on buses and taken out of town on a historical tour by the local companies that day (Aug. 21). The authorities knew something was brewing and wanted all visitors out of town," Mr. Harvey told the Northrop News.

He went on, "We had no idea anything was happening until we returned around dusk. As we rounded a bend, we were suddenly confronted by an angry crowd

of thousands of Czechs bearing torches and being chased by tanks." Brno is the second largest city in Czechoslovakia.

"It was unbelievable," he said in his British accent. "There were armored cars, tanks, people carrying torches, roads barricaded and the police and military were beating people up—everybody."

After finally reaching their hotel safely, the "foreigners" were told of a strict 8 p.m. curfew for everyone in the town. The curious tourists, though, ventured downtown to investigate. And two Canadian teammates of Mr. Harvey's came back badly beaten.

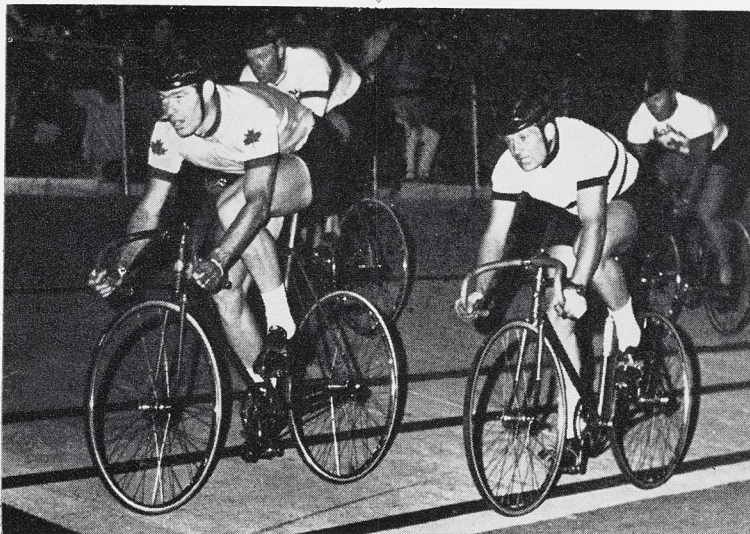
But back to Barry the bicyclist. Mr. Harvey has been riding competitively for eight years. His times are faster than any Britisher and next year he will participate in the British Empire Games at Edinburgh, Scotland.

NEW FIELD OFFICE OPENS IN BANGKOK

Northrop Corporation has established a new Southeast Asia Regional Field office at Bangkok, Thailand, to serve Northrop interests in Thailand, South Vietnam, Cambodia, Laos, Malaysia, Singapore, Indonesia, New Zealand and Australia.

O. M. Lowery, formerly manager of the Southeastern Regional office at Huntsville, Ala., has been named to manage the new office.

In another change, the Southeastern Regional office has been moved from Huntsville to Fort Walton Beach, Fla. and W. A. Boggess named to manage the office.



LEADING THE FIELD

Canadair's Barry Harvey, wearing Canadian colors, leads at Brno.

It's a Small World For 'Eyes' Of Scanning Electron Microscope

To the naked eye, the flour beetle is a tiny speck in a sealed jar containing a trace of flour. In the electron microscope, this speck becomes a spiny monster with strange and threatening appendages.

This is an example of the world which the powerful scanning electron microscope, located in the Northrop Corporate Labs, can reveal.

The instrument, costing \$90,000 and put into operation March 1, is as versatile as it is expensive.

Generally, it "can examine any sort of rough surface with a depth of focus 300 to 500 times greater than conventional optical instruments," says Richard Schneidmiller, technical specialist.

The instrument has been specifically used for fracture analysis of components from aircraft. It also can be used to examine composites and fibers, determining quality of materials and bonds and the distribution of fibers.

Advantages

With its power of magnification ranging from 40 to 50,000x, the scope also is useful in examining biological specimens. The scanning electron microscope has a significant advantage over transmission type electron microscopes in the examination of biological samples.

The scanning electron microscope produces a stream of electrons which scans the sample and dislodges "secondary electrons" from the sample's surface. These electrons are attracted to a detector which transmits a signal reproduced as an image on a viewing screen.

Other types of electron micro-



FLOUR BEATLE HEAD

Instrument produced this 170x view of live, unprepared insect in specimen chamber.

'Fling Thing' Will Honor Top Athletes

NRC athletes will mark the end of the softball season and the beginning of the football season with a Sports Award "Fling Thing" Saturday, 8:30 to 1 p.m., at the NRC Clubhouse.

The cost of the evening is \$2 per person, including music by a live rock group, a midnight sandwich bar and an open liquid refreshment bar.

Tickets are available through softball and football team managers until Thursday. Additional tickets may be obtained by contacting commissioners or Tom White in Personnel Activities, Plant One.

At the dinner dance, awards will be presented to winners of the intra-company softball league and special recognition will be given to NRC teams that competed successfully in the Los Angeles County Program.

scopes send a stream of electrons through the sample, thus necessitating a very thin sample section. The scanning scope is therefore more flexible since it is able to produce direct and three-dimensional views of whole organisms rather than tiny sections of them.

Little or no preparation of biological samples is required. Thus, insects such as the flour beetle which can survive in a vacuum for up to 45 minutes can be examined while still alive.

Other modes of the instrument's operation also are useful: backscatter electrons give excellent contour information; specimen current can measure conductance through a sample; cathodoluminescence can study distribution of materials with differing luminosities in a sample; and an X-ray spectrometer attachment can determine elements (sodium through uranium) present in a sample from the characteristic X-rays emitted by the sample.



UNIQUE LABORATORY EQUIPMENT

Richard Schneidmiller operates NCL scanning electron microscope.

New World's Record for Flying Hours Set by F-5's

A new world record for flying hours logged by Northrop F-5 tactical fighters has been chalked up by aircraft operated by the USAF's 4441st Combat Crew Training Squadron at Williams AFB, Ariz.

Two of the squadron's F-5's recently passed the 2,000-hour flying mark.

Pilot of the first aircraft to top the new mark was Major Miles Withrow, USAF. Major Withrow has already logged over 1,120 flying hours as an F-5 instructor pilot. He was among the Air Force "Skoshi Tiger" pilots who evaluated the F-5 in combat in Southeast Asia.

Crew chief for the record-setting aircraft is SSgt. Albert Ware who has maintained the plane for two years during which it has logged more than 800 hours of

flying time.

The 4441st CCTS is the primary USAF training unit for pilots and maintenance personnel from around the world who fly and service the F-5 for allied nations.

Since 1965, the 4441st CCTS has graduated more than 320 pilots and almost 1,700 ground crew members from specialized F-5 training programs. The pilots are all from allied nations, the ground crews include allied and USAF personnel. In addition, the 4441st has trained many USAF pilots in the F-5.

Northrop Corporation, Aircraft Division, has delivered more than 600 supersonic F-5 tactical fighters. They are presently in service with or programmed for use by Air Forces of 16 Free World nations.



WORLD FLYING TIME RECORD FOR F-5

Major Miles Withrow, in cockpit, receives congratulations from Lt. Colonel H. O. Thomson, commander, 4441st CCTS, as SSgt. Albert Ware looks on.

Northrop Son Rates Tops In Accordion Festival

Joey Perry, 11-year-old son of a Northrop couple, has won a first and a second place in the Western States Accordion Festival at the International Hotel.



Joey Perry

Joey won his first in competition with 15-year-olds with his rendition of "Never on Sunday." The festival, held in August, attracted contestants from all 11 western states.

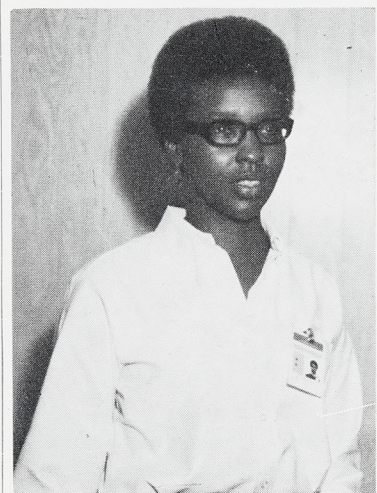
This is the third straight year Joey has competed in the Western States Festival and the fourth year he has been playing the accordion.

Last December he played with Frank Yankovich, the "polka king," and his band in Cleveland, Ohio, while on a vacation trip.

DANCE LESSONS

Dancing lessons in the advance western swing and the rhumba will begin Tuesday, Sept. 30, at the VFW Hall, Hawthorne. Swing lessons will be from 8 to 9 p.m. and rhumba lessons from 9:30 to 10:30 p.m.

The cost for 10 weeks of instruction is \$7.50 per person or \$10 per couple for one dance and \$10 per person if both are taken. Registration is accepted during the first three weeks of a series.



Audrey Worthy

TRAP-SKEET FINALE

The final meet of the year for NRC Trap and Skeet Club members is set for Oct. 12 at the Golden Valley Gun Club, Paicoima.



"THE PLACE LOOKED AS IF A BOMB HAD HIT IT."



FAMILY IN DANGER

Audrey Worthy Visits Disaster Area

The evening of August 10th was peaceful in Los Angeles.

Audrey E. Worthy, a Publications assistant in the Electronics Division, was at home reading a book when a news bulletin flashed across her TV screen: "Hurricane Camille" was approaching her hometown of Gulfport, Miss.

Helpless, Audrey could do nothing but wait and wonder how her father and eight brothers and sisters would survive the terrible storm, which by now was twisting through Gulfport at a terrifying 210 miles per hour.

Audrey's father later described the scene moments before the hurricane rained its destruction:

"It was pitch black and quiet. A sudden stillness was in the air and then everything turned red. My family and I huddled in a corner of the house and prayed . . . prayed as we heard the roar of the wind, and trees toppling outside our home."

"It was terrible," Audrey explained. "I just didn't know what to do. The reports on television

and radio weren't encouraging at all.

"One news report said the Red Cross was in the city helping the people. I called the L.A. Red Cross and gave them the name of my father and asked them to try and reach him.

The Red Cross got through to an aid center where Audrey's 16-year-old sister was on the phone.

"She said about two feet of water had gushed through the house and a tree had fallen through the roof.

"She said that they were then evacuated to an aid center, but that the center's roof had collapsed, separating two of my little sisters.

"When I heard that I knew I had to go to Gulfport. I called the airlines to make a reservation, but the reservationist told me that the closest she could get me was New Orleans, (21 miles from Gulfport), and that was about as near as I'd get to Gulfport unless I wanted to walk the rest of the way.

"By that time I had calmed

down somewhat and decided to wait. However, that evening I began thinking that here I am in a nice comfortable home, just finishing a good dinner, while my father, brothers and sisters were in Mississippi with wet clothes on their backs."

Audrey went to work the next day and told her supervisor, Don Mealy, that she "just had to go."

Mr. Mealy made arrangements for Audrey to receive her vacation pay and several secretaries in the Division gave her clothes to take with her and \$50 to buy some canned food.

That evening Audrey and a friend of hers started the long trip to Gulfport — their car loaded down with clothes and food.

"As we entered the city, after driving about 12 blocks, we came upon nothing. Not a building was standing. You could see the foundations, but that was about all.

"Overhead there were airplanes and helicopters flying close to the ground, spraying to prevent disease from spreading. At the center of town there were soldiers guarding businesses, moving fallen trees and helping families.

"Telephone wires were all over the streets. The place looked as if a bomb had hit it, nothing was in one piece."

Audrey went straight to her father's home where she happily found her entire family somewhat shaken, but safe ("Thank God").

"My father's house was in fairly good shape," Audrey remembered. "It had shifted on its foundation, the roof had holes in it, all the windows were gone, the furniture was soaked, the floor was buckled, but it was still standing."

After unloading the food and clothes and seeing to her own family's needs, Audrey decided to stay awhile to help other people in the community.

As she worked with the Red Cross and other agencies in the town, Audrey recalled coming upon one woman who had lost her home and was in line to receive a mattress saying, "What am I going to do, what am I going to do?" The woman was the mother of 11 children.

After remaining eight days Audrey said she was so exhausted that she just had to come home.

"My family was in much better shape by then. They had food and clothes, and I physically just couldn't do any more for the town."

So Audrey left Gulfport, or what was left of it, and came back to California tired, but satisfied that her family was "okay."

Do You.... Remember?

(From the Northrop News files)
25 YEARS AGO

The P-61 Black Widow, now in combat in Europe and the South Pacific, is designated as the newest and deadliest aerial weapon . . . G. M. Blake and his daughters Mary Eddy, Jewel Sadler and Eunice Blake work in Inspection.

15 YEARS AGO

John R. Alison, vice president, Administration, has been elected president of the national Air Force Association . . . Scorpion F-89 all-weather interceptors have been assigned to Thule Air Base, Greenland.

5 YEARS AGO

The National Aeronautics and Space Administration has chosen the supersonic Northrop T-38 twin-jet Talon as a space flight readiness trainer for America's astronauts . . . W. E. Fellers has been named director of the new Product Development section at Norair.

WE ASKED THEM—What Trait Do You Admire Most in a Supervisor?



Mrs. Gibbs

Jamie Gibbs, key punch operator, Electro-Mechanical:

I think I would vote first for a cheerful disposition. If a supervisor has that all other difficulties seem to smooth themselves out. Fortunately, I have such a supervisor.



Mrs. Paton

Virginia Paton, electronics assembler, Electro-Mechanical:

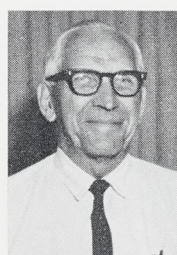
That's an easy one. I like the kind of supervisor we have here in this department. I guess if I had to narrow it down to the one trait I like the best, I'd say impartiality and friendliness.



Mr. Griffin

J. D. Griffin, setup man, Aircraft:

Patience and the ability to keep himself from blowing his mind with frustration.



Mr. Thews

Ted Thews, laboratory stockroom, Electronics:

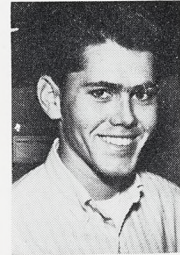
What his interest is in the people who work for him. Too often supervisors more or less ignore their subordinates when they should sit down and talk with them and let them know how they are doing on the job.



Mr. Brink

D. M. McDonald, installer, Aircraft:

I especially look for the willingness to put a man in a job he knows and feels comfortable in.



Mr. McDonald

"Bud" Brink, Jr., precision inspector, Electronics:

Personality. I think each supervisor should maintain a personal contact with the people who work for him.



Mrs. Beltran

John Bross, Quality Control engineer, Ventura:

It all depends on what area you're working in and the types of personnel you're dealing with. Shop and office workers, for example, require different handling because their needs are different.



Mr. Bross

Doris Beltran, Plastic Lamination, Ventura:

Respect is the most important of all. If a supervisor comes to a mutual respect with an employee then both are able to reach a proper understanding.

Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale
Volkswagen, 1964, \$900. 213-679-3492. A
Pontiac, 1966 Bonneville, air & full power, min. bid, \$1,495. Credit Union ext. 1117. A
Pickup Truck, 1955 GMC, ¾ ton, wide side, 8' bed, w/hvy. duty trans., posit. rear end, r/h, \$1,500. 213-676-6980. A
Volkswagen, 1964, \$835. 213-472-3367. A
Volkswagen, 1967, radio, sunroof, \$1,500. 213-375-6971. A
Van-Camper, 1965 Dodge, V-8, 3-spd. auto, expand. roof, sleeps 5, fully equipped, \$1,850. 805-526-9644. A
Pickup, 1923 glass T roadster, w/392 cu. in. Chrysler eng. & trans., extras, \$400. 213-926-1944. A
Oldsmobile, 1965, h/top, \$1,100. 213-542-2003. A
Pontiac, 1968 LeMans, 2-dr. h/top, 350 cu. in. eng., auto. trans., p/s, p/b, radio, \$2,400. 213-672-2459. A
Sunbeam, Alpine, 1962, overhauled, \$750. 213-391-1520. A
Chevrolet, 1956, V-8, 4-dr., \$175. 213-644-6143. A
Mustang, 1965, h/top, 4-spd., V-8, \$1,225. 213-370-5175, 213-324-8618. A
Ford, 1947 coupe, \$75. 714-842-5961. A
Cadillac, 1965, convt., full power, a/c, AM-FM radio, \$2,100. 213-697-4258. A
Dodge, 1964 Polara convt., r/h, \$795. 213-379-4672. A
Pickup, 1968 Ford F250 camper special, 390 eng., auto. trans., \$2,550. 213-757-1345. A
Chevrolet, 1954, \$140. 213-324-8758. A
Corvair, 1965, 140 h.p., 2-dr., stick shift, \$900. 213-671-0813. A
Volkswagen, 1964, radio, 20,000 mi, \$1,050. 213-860-5767. A
Plymouth, 1968 Roadrunner, auto., extras, \$2,600. 213-676-1085. A
Volkswagen, 1967, stereo tape, radio, std. shift, \$1,625. 714-540-0058, 714-633-0074. A
T-Bird, 1956, h/top w/portholes, p/b, p/s, auto. trans., r/h, \$1,295. 213-431-4127. A
Dune Buggy, glass, street legal, VW, \$650. 213-370-2876. A
Morgan, 1957 roadster, 4+4, new top & curtains, \$950. 213-325-0487. A
Chevrolet, 1967 Impala, air, auto., p/s, p/b, \$1,795. 213-380-9366. A
International Scout, 1962, 4-wheel drive, \$900. 213-545-1676. A
Station Wagon, 1959 Bonneville, p/s, p/b, a/c, \$250. 213-372-5405. A
Volkswagen, 1968, auto., radio, \$1,500. 213-755-8690. A
Pontiac, 1966, 2-dr. h/top, customs, \$2,900. 213-326-2039. A
Corvair, 1964, 2-dr., 4 spd. stick, r/h, 110 h.p., \$600. 213-378-2810. A
Volkswagen, 1968, radio, \$1,650. 213-532-7175. A
Buick, 1965 Riviera, full power, fact. air, \$1,790. 213-675-4305. A
Mustang, 1967 GT fastback, 390 cu. in., 4-spd., d/brakes, American mags, \$1,950. 213-634-8736. A
Truck, 1961 GMC, ½-ton, V-6, 4-spd., long bed, r/h, & camper, sleeps 4, many extras, \$1,295. 805-498-8237. A
Ford, 1959 Galaxie 500, \$250. 213-292-9489. A
Oldsmobile, 98, 1968, 4-dr. h/top, many extras, \$3,895. 213-323-4329. A
Mercury, 1962 Comet, 2-dr. h/top, auto., r/h, 6-cyl., \$325. 213-755-7166. A
Valiant, 1962, 2-dr. h/top, 6-cyl., stick, r/h, \$450. 213-370-4007. A
Datsun, 1968 4-dr. sedan, \$1,495. 213-882-0761. A
Mustang, 1965 2+2, V-8, p/s, auto. trans., r/h, \$1,175. 213-325-4580. A
Volkswagen, 1965 bus, lug. rack, awning, \$1,050. 213-374-3542. A
Station Wagon, 1968 Plymouth, 3 seats, pwr. d/brakes, p/s, a/c, auto. trans., r/h, \$3,200. 213-379-7853. A
Chrysler, 1962, 2-dr. h/top, r/h, auto. trans., \$650. 213-376-4503. A
MGB, 1967 GT, wire whls., 23,000 mi., \$2,250. 714-644-2887, 213-329-2926. A
Corvair, 1965 Monza, 2-dr., 140 h.p. motor, just o/hauled, \$900. 213-242-2957. A
Mustang, 1966, 289 V-8, auto. trans., full power, \$1,565. 213-377-1243. A
Mercury, 1969 Cyclone, 428 cu. in., 335 h.p., tach., posit., C6 auto. trans., r/h, \$2,795. 213-674-4972. A
Chevrolet, 1957, \$125. 213-329-9982. A
Ford, 1958 Victoria, 2-dr., Cruise-o-matic, auto. trans., \$280. Box 1801. A
Chevelle, 1969 2-dr. sports cpe., p/s, auto. trans., radio, \$2,600. 213-545-1747. A
Ford, 1964 Fairlane 500 sports cpe., V-8, auto. trans., p/s, a/c, \$795. 213-644-7948. A

Automobiles For Sale
Chevrolet, 1955, 339 cu. in. Mondello, Sig Eason, 4-spd., 4-11, scatter shield, tape, \$1,100 or parts, various price. 213-323-6786. A
Household Items For Sale
Stove, O'Keefe & Merritt, avocado, clock, timer, lights, 2 yrs. old, \$170. 213-679-1606. B
Washer, auto., \$20. 213-675-8891. B
Lamps, 5, swag, \$5. ea. 213-323-5931. B
Sofa, chair, Danish modern, vinyl cushions, \$35. 213-327-2279. B
Vacuum Cleaner, Kenmore canister, all attachments, \$15. 213-671-0925. B
Piano, upright, recently tuned & antiques, \$235. 213-696-7529. B
Coffee Table Set, 5-pc., 30" round, 20" high, 4 matching stools, & 4-pc. nested tea tables, 20"x14"x24", Chinese design, \$400. 213-374-4192. B
Cocktail Table, Breccia marble top, & teak lamp table, \$165. 213-378-3529. B
Coffee Table, maple & step end tables, solid birch, \$50. 213-329-2016. B
Refrigerator-Freezer, Servel, 2-dr., gas, 14 cu. ft., \$25. 213-670-7940. B
Bedroom Set, blonde, dbble. bed w/headbd., box springs, mattress, 6-dwr. dresser w/mirror, \$25. 714-524-7242. B
Rugs, bathroom, 2 pink, matching, reversible, shag, fringed, oval 53"x31", round 27½", \$9.50. 213-474-5726. B
Stove, O'Keefe & Merritt, white, 4-burner, gas, \$25. 213-679-5243. B
Crib, mattress, blonde, 2 sheets, \$20. 213-326-8455. B
Room Divider, etchwood, planter top, 2 shelves, sliding doors, \$35. 213-675-3254. B
Crib & mattress, \$17.50. 213-675-7938. B
Stove & oven, bltin-type, G.E., turquoise, w/5' counter top, sink & matching 8' counter top, \$75. 714-828-2856. B
End Tables, walnut, 2, \$20 ea. 213-541-3000. B
Sofa, colonial, 6', brown, \$59. 213-754-7379. B
Crib, old fashioned, all wood on steel frame & springs, \$20. 213-397-3504. B
Headboard for king size bed, brass, \$20. 213-373-3067. B
Washer, Hoover portable, & spin dryer, \$20. 213-674-9401. B
Miscellaneous For Sale
TV-Radio-Record Player comb., RCA, mahogany cabinet, \$175. 213-675-6020. C
Units, 6, Inglewood, \$3,500 dn., assume existing loans, \$51,000. 213-547-3746. C
Pups, German shepherd, pedigree, \$50. 213-770-0566. C
Drum Set, complete, \$175. 213-676-4055. C
Camera, Bolex H8, 3 lenses, turret, case, access., \$200. 213-345-3634. C
Chronometer, Giraud-Perrigeaux, \$75. 213-759-0493. C
Shotgun, 12 ga. J. C. Higgins, 3-shot, bolt action, never used, \$20. 213-754-1089. C
Generator, Sears, for 1955-'57 Chevrolet, \$10. 213-377-7193. C
Transmission, auto., for 1957 283 Chev., \$60. 213-688-1717. C
Jungle Gym, welded steel pipe, \$12. 213-375-9689. C
Pups, Doberman pinschers, AKC reg., born July 14, male & female, black & tan, or red & tan, \$110. 213-320-8132. C
Pups, cocker, light tan, born Sept. 5, males, \$30 ea. 714-633-5521. C
Gun, custom-made 30-06, inlays in stock, 4X Weaver scope, Springfield action, \$175. 714-525-5879. C
Lot, 25'x80', level, on hilltop, all utils. in, close to Arrowhead Lake, \$2,300. 714-892-9318. C
Roll Bar, for Datsun sports car, \$15. 213-326-7528. C
Surfboard, 10'4", \$40. 213-374-2158. C
House, 2-bdrm., stucco, det. gar., \$18,750. 213-676-7429. C
Pistol, Star model B, holster, \$65. 213-785-1405. C
Slide Rule, Pickett & Eckel, Model 4ES, 10" dual base log log, case & manual, \$18. 213-321-2848. C
Units, 6, Crenshaw near 149th St., owner will finance, \$59,500. 213-675-1776. C
Car Seat, baby's, white padded vinyl w/ head rest & safety belts, \$8. 714-968-5343. C
Runabout Hull, 22', ready for eng., fiberglass o/plywood, many extras, \$850. 213-644-6164. C
Travel Trailer, self-contained 20' Catalina Royale, E-Z lift hitch & controls, \$1,845. 213-379-3917. C
Motorcycle, 1967 Kawasaki, 175 cc, elec. start, \$295. 213-534-1028. C
Guitar, & amplifier, Fender Stratocaster w/3 pickups, hard shell case, \$350. 213-370-6400. C
Kittens, Siamese, male, 3 females, \$15 ea. 213-755-2103. C
Motorcycle, 1968 Bultaco, 360 cc, 43½ h.p., \$725. 714-527-6067, 714-632-7829. C
Motorcycle, 1966 BSA Mark II, 650 cc, \$800. 213-676-9939. C
Stereo, portable, auto. changer, \$40. 213-373-3128. C
Boat, 15' 1964 Biesemeyr, 85 h.p. Merc. outbd., big wheel trailer, \$1,375. 213-327-2188. C
Motorcycle, 1966 Suzuki, 120 cc, \$275. 213-373-1623. C

Miscellaneous For Sale
Tape Recorder, Panasonic 4-track, auto. reverse, stereo tape, Model RS-790S, all access., \$175. 213-328-0460. C
Chord Organ, Silvertone, \$50. 213-672-4572. C
Pups, miniature Dachshund, AKC reg., 6 wks. old, \$65. 805-498-8461. C
Stereo Unit, walnut setting, Singer, w/ Garrard turntable & KLH spkrs., \$50. 213-329-1522. C
Home, 3-bdrm., Westwood area, sep. dining, cpts., lge. yd., \$36,750. 213-475-1549. C
Tires, 5 w/split rims, Firestone Transport 700-15, fit Ford truck, \$250. 714-827-7189. C
Sailboat, Cascade 29, partially completed, fiberglass hull, \$2,800. 213-371-4037. C
Tuner, FM, Eico HFT-90, \$25. 213-944-5946. C
Surfboard, 7'5" W.A.V.E. set, Greenough Stage IV fin, \$25. 213-944-5466. C
Bicycle, ladies 28" Schwinn, \$30. 213-675-9673. C
Guitar, Rickenbacker, deluxe hollow body, 3-dual pickups, \$290. 213-474-5682. C
House, 4-bdrm., 2 baths, bltins, d/washer, recently remodeled, Hollypark, \$32,000. 213-327-1568. C
Motorcycle, 1967 Yamaha, 125 cc sport, \$225. 213-371-2705. C
Pups, silky terrier, AKC, 6 mos. old, blue & silver, male, \$125; female, \$150. 213-370-0025, 213-371-9441. C
Engine, 1957 Chev. 409 cu. in., many extras, \$400. 213-379-3138. C
Honda, 1966 CL160, 1,900 miles, \$375. 213-374-1133. C
Boat Engine, Chrysler drag, \$500. 213-371-2531. C
Pups, Great Dane, fawn, 8 wks. old, champ. blood line, AKC reg., \$75 & up. 213-752-2717. C
Home, Westchester area, 2-bdrm., 1 bath, dps., cpts., \$23,500. 213-672-9278. C
Anchors, for 5' to 35' boats, with & w/out chain, \$3 to \$20. 213-378-2609. C
Motorcycle, BSA 1966 Hornet, 650 cc, \$800. 213-377-7670. C
Engine, 1964 Mercury 650/65 h.p. outbd., w/controls, tank & tach., \$525. 213-478-5653. C
Golf Clubs, ladies starter set, 2 woods, 5 irons, cart, \$35. 213-373-3012. C
Tent, Sears, 9x12, \$25. 213-675-3885. C
Wig, shoulder length, 100% human hair, champagne color, \$20. 213-675-3087. C
Guitar Amp, child's 5-watt, \$20. 213-323-3202. C
Lot, 70'x132', in city of Orange, owner carry bal. at 5½%, \$2,000 dn., \$8,500. 213-671-2569. C
Wedding Ring Set, woman's, white gold, half carat center stone w/smaller stones, size 7½, \$300. 213-676-8789. C
Air Conditioner, International Harvester, \$40., other items, various prices. 213-474-7520. C
Motorcycle, Suzuki, X6 1966 Hustler, 250 cc, \$400. 213-379-3657. C
Acreage, 5 acres, level, near subdivision, \$75 mo., \$750 dn., \$7,500. 714-846-2244, 714-846-2627. C
Cemetery Lots, 4, San Fernando Valley, Glenhaven Memorial, sunny slope sec., \$200 ea. or \$750. 213-324-7442. C
Walker Aid, \$20. 213-674-0852. C
Travel Trailer, 20' 1969 Aristocrat, completely self-contained, used 6 mos., \$2,700. 714-524-1753. C
Cooler, portable, \$15, other items, various prices. 213-755-7521. C
Piano, grand, A. B. Chase, \$750. 213-379-0324. C
Vacuum Cleaner, upright Hoover, \$15. 213-371-3620. C
Magazine, Electronics, 1958-62; IRE proceedings, 1955-62, others, over 100 issues, \$8.50. 213-378-1863. C
Sloop, Coronado 25, racing gear, radiophone, sum log, many other extras, \$6,900. 714-673-0104. C
Lot, 75x140, big trees, lights, water, near lake, 30 mi. east of Seattle, Wash., \$3,500. 805-252-9379. C
Acreage, 2½ acres, Antelope Valley, \$35 dn., \$35 mo., no int., \$3,450. 213-378-1026. C
Valve Covers, Offenhauser, for Chev. V-8, \$25. 714-838-7161. C
Typewriter, Underwood, portable, \$10. Box 1802. C
House, 1-bdrm., large lot, \$17,000. 213-671-2930. C
Own-Your-Own-Apt, 2-bdrm, 2 baths, all elec., dps., cpts., patio, pool, party rm, hobby shop, enc. 2-car gar., \$24,000. 213-327-8047. C
Kittens, Siamese Sealpoints, \$15. 213-320-6685. C
Knitting Machine, Knit Master, w/instructions, \$35. 213-632-1666. C
Camera, Fotron, electronic, bltin flash, leather carrying case, \$250. 805-482-8509. C
Golf Bag, ladies, Don Wilson, matching h/ covers & bag cover, \$15. 213-328-3020. C
Record Player, auto. RCA, 45 rpm, metal stand w/60 slots & 25 records, \$25. 213-325-5245. C
Tires, 5 new Goodyear F-70-14, polyglass, \$35 ea. 213-675-2514. C
Heater, elec., portable, dual heat w/thermostat & fan, \$12. 213-833-5594. C
Mini-Bike, 3½ h.p., 4-cy., lge. whls. & tires, \$95. 213-375-8536. C
Wig, brown shoulder length, \$15. 213-334-1084. C
Lot, 1 acre, near Lancaster, small house, fence, water, elec., fruit trees, \$5,500. 714-897-0994. C

Miscellaneous For Sale
Motorcycle, 1966 Bultaco, 250 cc, \$375. 213-676-8892. C
TV, color, Magnavox, Mediterranean style, pecan, 12 mos. old, \$495. 213-325-8175. C
Boat, 15' glass, 45 h.p. Merc. o/board motor & trailer, \$350. 213-328-1114. C
Lot, Crestline, Club San Moritz area, membership incl., \$4,500. 714-828-4853. C
Shotgun, Remington 1100, 12 ga. skeet gun w/shell catcher, \$150. 213-327-4585. C
Camper, 8½' Open Road, cabover w/chem. toilet, \$800. 213-534-1638. C
Accordion, 120-bass Contello, \$50. 213-379-5366. C
Shopsmith, Mark 5, jointer & other attachments, \$200. 213-833-9430. C
Trail Bike, 1967 Honda 90, 400 actual miles, \$250. 213-598-3072. C
Dog, AKC, Labrador retriever, female, 11 mos. old, \$25. 213-881-2604. C
Wanted to Buy
Trail Bikes, 4, 80 to 100 cc, Yamaha, Honda or Hodaka. 213-645-2711. D
Golf Clubs, used, ladies. 213-328-7534. D
Motorcycle, 500 cc to 750 cc, prefer Triumph, any condition. 213-328-2932. D
Radio Console, or table model, late 1920's or 1930's. 213-329-4200. D
Desk, wooden, approx. 60"x30" w/drawers, willing to pay \$40. 213-644-9018. D
Sailboat, glass, full headroom & equip., 24'-30', race/cruise. 805-482-1188 or Box 1803. D
Tape Recording System, complete, Solid State, 3-head, stereo, sound-on-sound, echo effect, 40 w. amp., phono input, Sony Model 630 or equivalent. 213-454-5985. D
For Trade
Dryer, elec., Norge 220 V., front air vent, trade for rear vent-type. 213-457-9186. E
(Free) To Be Given Away
Dog, champion skye terrier, 4 yrs. old, references required, has papers. 213-534-5350. F
Rentals Offered
Cabin, modern, Moonridge, Big Bear Lake, family, \$32; couple, \$28 w/end. 213-833-3279. G
Cabin, Lake Arrowhead, close to lake & village, f/place, \$65 wk., \$25 w/end. 213-887-6287. G
Chalet, 3-bdrm., 2 baths, completely furn., sleeps 10, Lake Arrowhead, \$150 wk., \$75 w/ends. 714-528-2303. G
House, 3-bdrm. & den, 1¼ baths, fenced yd., near schools, Anaheim, \$225 mo. 714-828-5853. G
Cabin, Big Bear Lake, \$30 w/end. 213-867-0662. G
Rentals Wanted
House, 3-bdrm., unfurn., fenced yard, Oct. 1, to \$250. 213-823-7842. H
House, 1-bdrm., unfurn., fenced yd., gar., not more than \$110 mo., preferably beach city near Hawthorne facility. 213-677-7646. H
Child Care
Child Care offered, my home, days only, retired teacher, 4 miles to Electro-Mechanical. 714-525-2657. I
Child Care offered, hot breakfast & lunch, fenced yd., other children to play with, close to Northrop. 213-772-3884. I
Child Care offered, my home, 5 minutes from Aircraft, fenced yd., hot lunch. 213-644-5395. I
Child Care offered, my home, fenced yd., play facilities, near Century, Aviation & Arbor Vitae. 213-674-3843. I

Rides and Riders
Rides Wanted
8 a.m. — 4:45 p.m.
Vermont & Sepulveda, Harbor City. Would like ride both directions, however, ride home is biggest concern. Lillian Hensley, Aircraft ext. 2014, 213-534-2970.
Imperial & Main St., El Segundo. Maggie Mackey, Aircraft ext. 4241, 213-322-0367.
San Bernardino Fwy. & West Covina, West Covina. Route—605 Fwy. to Imperial Hwy. across to Crenshaw. R. E. Herfert, Aircraft ext. 2515, 213-962-1821.
Rides Offered
7:30 a.m. — 4:15 p.m.
La Habra, La Mirada, Whittier Area. Joseph R. Soderquist, Aircraft ext. 2934, 213-697-4258.
8 a.m. — 4:45 p.m.
San Bernardino Fwy. & West Covina, West Covina. Route—605 Fwy. to Imperial Hwy. across to Crenshaw. R. E. Herfert, Aircraft ext. 2515, 213-962-1821.
Child Care
Child Care offered my home, full or part time, day or night, 5 min. to Aircraft. 213-675-3259. I
Child Care offered, 3 yrs. & older, my home, near York Ave. school. 213-675-3541. I
Personals
To all our wonderful friends at Northrop, I extend my deepest thanks for the many messages of sympathy, floral tributes & contributions to the Heart Fund Association in Ray's honor. OLIVE MAILLET.
My family & I wish to express our sincere thanks to my many friends who sent cards of condolence, & the contribution sent to Cerebral Palsy in our son's name Sgt. Jack M. Apodaca, killed in Vietnam on Aug. 14, J. J. APODACA. L
We wish to thank the NRC & all of his Northrop friends for the flowers & kind expressions of sympathy in the loss of our husband & father, Wes Foth. MRS. PEARL FOTH & CHILDREN, JOAN & DALE. L
I wish to thank all my friends at Northrop for their kindness, flowers, cards & visits to the hospital & my home. ELLA POST. L
Need person to care for partially crippled elderly woman, Tues., Wed., & Fri., 8-30 a.m.-10:30 a.m., no housework required, \$2 hr. 213-833-2584. L
My heartfelt gratitude & thanks to all my friends at Northrop for the good wishes, gifts & luncheon for my retirement. EVE-LYN M. MARTIN. L
We wish to express our sincere thanks & appreciation for the sympathy & kindness extended to us by Manufacturing Control upon the loss of our wife & mother, Margaret. LEONARD WILSON & FAMILY. L
Clothing wanted that can be repaired for the Indians in Arizona, men's women's & children's. 213-329-7998. L
My sincere thanks & appreciation to my friends & co-workers at the Santa Fe facility for the thoughtfulness & kindness upon my retirement. ROY MCCOY. L
For Safe or Trade
Duplex Apt, South Gate, 1 bdrm. ea., R-3 zone, \$5,000 equity, \$16,900 or trade for Big Bear property. 213-693-1367. M
Stove, \$15 or trade for dryer. 213-421-7029. M
Volkswagen, 1967 Squareback, \$1,600 or trade for late model ¾-ton pickup. 714-523-2495. M

On Top of The Work



THE MAN IS AS BIG as the job, in this photograph typifying the individual responsibility in the Boeing 747 fuselage work at the Aircraft Division.

Ready for Art Show



DIVISION ARTISTS, from left, Jack Flannagan, Bob Peck, Ed Mosher and Bob Mack select painting for the Art for Fun(d)s Sake event of the Palos Verdes Community Arts Association. The annual show will again be held at the Electronics Division's Palos Verdes facility. Northrop personnel and families are admitted free by showing their company badge. Regular admission is \$1.50 for adults. The show will be held Oct. 11 and 12.

200 Hear Tom Bade Tell Families How to Get Along

More than 190 members of the joint Electronics and Electro-Mechanical Management Club, and their families, attended a special meeting to hear Tom Bade speak on family communications.

Mr. Bade, a nationally known authority, centered his speech around "How to really hear your

wife and children and how to have them really hear you."

Mr. Bade has more than 15 years experience in his field and has conducted forums on family communication across the nation.

The meeting marked the final get-together of the two divisions. Beginning next year, the Electronics Division Management Club will meet at the Elks Club in San Pedro; the Electro-Mechanical Division will hold their meetings at the Disneyland Hotel.

Following the meeting, club officials announced that this year's dinner dance will be held Nov. 8 at the Biltmore Hotel.

The annual affair will get under way with a cocktail hour at 7 p.m., followed by dinner. Music will be provided by Matty Malneck and his 12-piece orchestra which features a female vocalist.

In addition, a well-known nightclub or television personality also will be on hand to entertain.

Bob Abel, Club vice president, pointed out that even though the Club is separating next year, "the annual dinner dance will continue to be a combined affair."

On The Job



FRAN CHANDLER, Fabrication, deburrs sheet metal parts. In between these jobs she also keeps records on parts in use and on order. Her work is another of the many jobs that dovetail together to keep Northrop products moving off the assembly lines.

SUGGESTIONS

(Continued from page 1)

cause of their protruding ball ends. Mr. Froehling proposed removing the small balls and replacing them with special shoe type tips of his own design.

Another money saving idea came from Garry Smith who proposed use of an aerosol-type adhesive spray for applying lot cards to boxes and barrels of parts in process or being inspected at Page Court. Tapes and staples previously used had proven unsatisfactory. He received an award of \$88.

New Position Title System Goes Into Use

A new management position titling system went into effect at the Electro-Mechanical Division on Sept. 1, according to an announcement by Frank W. Lynch, vice president and general manager.

The change was made as a result of a study of Northrop and the aerospace industry which determined the advisability of delegating authority to division general managers to designate organizational nomenclature and management titles appropriate to their division needs.

Under the new system, the titles of manager, program manager, and project engineer will be used in supervisory titles of all levels within the Technical and Administrative areas within the California activities.

In shop and shop related functions, the titles of supervisor, general supervisor and superintendent will be used in addition to the new manager pattern.

Reference to organizational level has been eliminated from the title to increase focus on functional organizational responsibility. Organizational designations such as units, branch, group, and section have been eliminated. All segments of the Division will be referred to as departments.

**IS IT NEWS?
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HAWTHORNE**

First Aid Certificates Presented To Eight Who Completed Course

American Red Cross First Aid certificates were presented to eight at the Electro-Mechanical Division recently. Presentation was made by Riley Eledge, Plant Protection specialist and class instructor, to those completing the 10-hour course offered to all members of the Emergency Crew and first line supervisors.

Those receiving certificates were: Arnold Aguilar, Wayne C. Anderson, Maurice Cook, Jr., Donald Dearen, Douglas Milburn, Ed Parsons, Tommy Runels, and Roy Steinestel. Also earning a certificate but not present for the presentation was Walter Hoppe.

Al Van Der Most, Safety administrator, acting for Don McInnis, manager, Operations department, told the graduating group that they have joined 44 other Electro-Mechanical Division

employees who have received instruction in the prevention and immediate care of injuries both on and off the job.

"Red Cross First Aid Training is considered by management to be an important phase of our over-all safety program," Mr. Van Der Most said. "If the techniques learned in these classes are utilized in any emergency situation, on or off the job, it will have proven to be a good investment."

EIGHT BALL BEGINS

The First Shift Eight-Ball Pool tournament will begin this month, according to Earl Jackson, NRC Billiards commissioner.

Fourteen teams are entered and play will be at Big John's. The tournament is scheduled to run through Dec. 17.

They Wait for Next Season



SEASON'S OVER, but these five members of the Division Softball Team aren't ready to quit. From left, Cheri Swanson, Elena Huerth, Lois Duncan, Sally Ann Osuna, and bat girl Judy Ann Huerth.

Team Five Takes Top Honors in NRC Bowling Club Mixed Fours

Team Five took top honors in the recently completed NRC Bowling Club Mixed Fours League, according to Vito DePaul, bowling commissioner.

The team, consisting of John and Kay Newham, and Harold and Jean Stormfeltz, won 29 and lost 15. Total pins were 18,842, high game was 706, high score 2,013 and total average 565.

Second place team, Ernie Verdugo, Dottie Miller, Frankie Menzie and Vito DePaul, tied with team seven, Jerry Reeder, Phil Reeder, Helen Spies and Fred Spies, and rolled off to a victory on sweepstakes night. Their totals were 26 won (including playoff), and 19 lost, total pins 19,922, high game 713, high score 1,917; total average 612.

Most improved bowler—women was Vicky Dolcini; most improved bowler—men, Ken Sidle.

Season highs were: Series women, Jerry Reeder, 605; series men, Jerry Cox, 644; Game women, Frankie Menzie, 244; game men, Bert Arriola, 248.

ASMS

(Continued from page 1)

radars and an integrated maintenance central processing unit with remote data acquisition units and display systems. There also will be printed readouts to determine equipment availability, fault isolation and location to the lowest replaceable unit.

NRC Calendar

For information on NRC activities from Sept. 25 to Oct. 8, call Personnel Services, ext. 244, or contact the commissioner. All meetings are held in the NRC Clubhouse, Fullerton, unless otherwise noted.

ARCHERY—Will be shooting Professional Archery Association matches—60 arrows at 20 yards at 20-inch face targets—each Friday night. Scoring starts at 7:30 p.m. NRC Clubhouse. George Garner, ext. 656.

BIBLE—Mondays, Wednesdays and Fridays, Y-1 Conference Room; Tuesdays, Thursdays, Y-41 Conference Room. Orangethorpe group studying the Book of Acts. Page Court group studying prophecy.

BOWLING—Winter league now forming. Vito DePaul, ext. 443.

CAMERA CLUB—Instruction available for those wanting to learn to process black and white film. Harry Dent, ext. 244.

DESERT RATS—No scheduled events until November.

GEM AND MINERAL CLUB—will join California Outdoor Recreation League in a public land cleanup campaign on Oct. 11. Gaylord Miller, ext. 531.

GOLF—Next tournament set for Sunday Sept. 28 at Mountain View Country Club, Corona. First tee at 9:30. Medal play with full handicap. Green fee \$7. George Baldwin, ext. 1194.

GUN—Turkey shoot set for Oct. 5 at Silverado Sportsmens Range. Charles Fox, ext. 431.

POCKET BILLIARDS—New tournament just got under way at Big John's. Every Wednesday at 4 p.m. Earl Jackson, ext. 1249.

TRAVEL—WESTWARD HO! trip to Las Vegas leaves Oct. 17. Randy Lee, ext. 244.



FIRST AID TRAINING CERTIFICATES AWARDED TO EIGHT

From left, Al Van Der Most, safety administrator, Riley Eledge, instructor, and students Arnold Aguilar, Roy Steinestel, Tommy Runels, Ed Parsons, Wayne Anderson, Don Dearen, Maurice Cook, Jr. and Douglas Milburn.

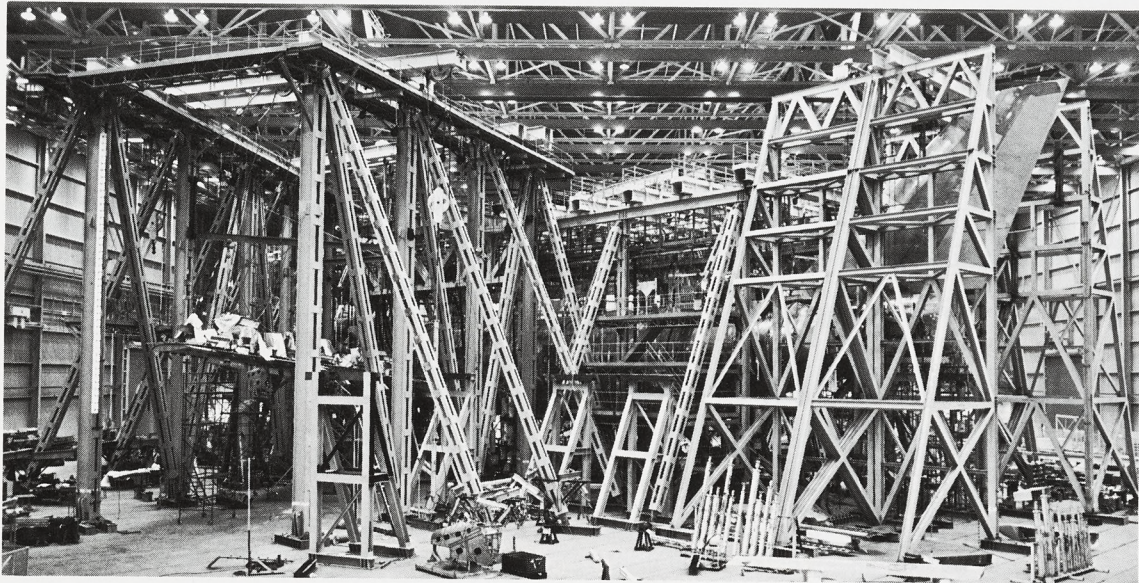
NORTHROP NEWS

ELECTRO-MECHANICAL DIVISION EDITION

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October 8, 1969



STATIC TEST RIG FOR BOEING 747

Airframe subjected to maximum stresses to be encountered in airline service, passes FAA tests successfully. (Boeing Photo)

747 Airframe Tests By Boeing Successful

All Boeing 747 airframe structural tests required for Federal Aviation Administration certification and commercial airline service have been conducted successfully, The Boeing Company has announced.

Purpose of the test was to verify and assure the strength of the airframe structure for commercial use. The first phase of the static test program subjected a production 747 airframe to stresses equal to the maximum the superjets will experience in service.

The static tests were conducted concurrently with production of the airliner. The 747 is scheduled to go into commercial service in early 1970.

Static testing is concentrated on the wings, flight control surfaces, high-lift devices, engine support structures, total fuselage, vertical and horizontal stabilizers and all other major structural components subject to loads in flight and on the ground.

This includes the subassemblies made for the Boeing 747 by the Electro-Mechanical Division. The division has made stringers for the 747 since the inception of the program. Recently the division assumed additional assembly work for the giant jetliner. This includes fuselage panel frame members, floor beams and miscellaneous items.

'AIRPORT DAY' SET FOR OCT. 18

Northrop Anaheim personnel have been extended a personal invitation from Brian Douglas, manager, Fullerton Municipal Airport, to attend Airport Day at the aviation facility on Oct. 18.

The airport will be host to the public for a behind-the-scenes look

(See AIRPORT, page 6)

Before the structural tests began, preparations included pouring more than an acre of concrete three feet deep. Three miles of 12-inch channel steel was set in the concrete, to be used as tie-down anchoring for the test airframe. More than 250 miles of instrumentation wiring and 24 miles of hydraulic tubing were installed.

Realignment in Financial Section Told by Gibney

A realignment in the Electro-Mechanical Division Financial Management department has been made. It combines the cost accounting activities currently performed by Accounting and the cost reporting and historical cost analysis that has been done by Financial Control into a single responsibility assigned to Accounting, according to R. L. Gibney, manager, Financial Management department.

The change involves eight people and a key manager, Ira Coleman, who will become manager of the new Cost Information organization.

Purpose of the change is to specialize the relatively different fields of finance by combining the record-keeping functions of cost control and cost accounting, thereby permitting Financial Control to develop greater emphasis in the analytical aspects of cost control. This will result in lower operating costs while maintaining the required analytical support to the line organizations.

Financial Control is under Richard Taylor and Financial Accounts is under Robert Norton.

Seven Receive Awards for Money Saving Suggestions

Seven additional suggestion awards for September have been announced at the Electro-Mechanical Division.

Florence Carpenter received \$30 for suggesting the use of a special tool fabricated from metal tubing to aid in placing ty-rap ties around cable bundles in restricted places. Her suggestion proved a simple solution to a time-consuming problem.

A \$20 award was made to George L. Coleman for proposing a divider strip between hoppers on a feed machine to divert over-flowing material and an internal filling level mark for a more positive capacity indicator. Implementation of Mr. Coleman's idea has prevented mixing of material due to overflowing.

ART SHOW FREE; BRING YOUR BADGE

Northrop personnel will be admitted free to the annual "Art for Fun(d)'s Sake" show at Northrop Palos Verdes facility this weekend, but you must show your Northrop badge for identification at the gate. The show is one of the largest art and crafts exhibits in Southern California. Each year Northrop Electronics Division permits the Palos Verdes Community Arts Association to use the company's grounds for the exhibit.

Jeanne LePiane received \$17 for a suggestion proposing segregated plastic trays so that hardware, nuts, screws and washers needed for assembling door mounting junction panels in the Polaris Depot would be readily accessible. The trays not only permit assembly crews to have all parts instantly available, but enables quick stock checks to avoid shortages.

No Spills

Joseph R. Beck received \$15 for an idea to use an adapter that permits loading ball bearings in an assembly without spillage.

E. B. Dubay also received \$15 for suggesting a vinyl thermofit sleeving in place of a Teflon coating formerly used to prevent scratches when measuring optical lenses. The sleeving has a longer life than the coating.

A suggestion by J. Piccaro proposed adding a vertical dial indicator mounting to existing check fixtures to permit concentricity checks to be made in the same setup with other lot checks.

G. A. Stiffler received a \$12 award for proposing use of a line aid to properly locate a strap part on a layout without having to do repetitive layout. The line aid greatly saves layout time.

Emergency Proves Value Of Training

Red Cross first aid training has again proven its worth in protecting employees during emergencies, according to Electro-Mechanical Division Safety Administrator Al Van Der Most.

Recently, John Walker, Manufacturing Control, received a severe laceration of the right forearm. A supervisor, Bud Latchford, using techniques learned in a Northrop-sponsored first aid training class, stopped the bleeding. Other employees, Sal Del Grasso and Jim Tucker, both graduates of similar first aid classes, and Boyd Williams assisted in the first aid treatment. They utilized emergency medical supplies strategically located in the work area.

"The prompt and proper actions of those involved again proves the value of our first aid courses," Mr. Van Der Most said. "There are countless stories of how first aid training has helped save a life in an emergency. When there is no time to summon expert medical treatment, first aid training permits the trained individual to take over without hesitation. He can judge the nature of the trouble and give proper care and comfort the patient until expert medical aid is obtained."

Long Time Navy Consultant Leaves for New Position

William G. Collins, manager of Walter Dorwin Teague Associates office at the Electro-Mechanical Division has left to accept a position with the U.S. Navy's Special Projects Office in Washington, D.C.

The Teague office here is consultant to the U.S. Navy for the MTRE program, approving designs and configuration management for Northrop-built support equipment for Polaris and Poseidon.

Mr. Collins opened the office here in November 1959. Since that time he has been responsible for technical review of documenta-

tion on the MTRE equipments which have been aboard all Navy Polaris submarines.

Mr. Collins, who received his engineering degree from Pacific States College, began his career designing equipment for Don Lee Broadcasting Company. He later worked for Navy civil service, General Dynamics and in Navy Quality Control before joining Walter Dorwin Teague Associates in 1959 to organize the consultant office here.

In leaving his present position, Mr. Collins was highly appreciative of the cooperation given him by Northrop personnel.



SAYING SO-LONG

Northrop's Cy Seeley, left, says so-long to William Collins. Behind Mr. Seeley is S. Gollin, vice president of Engineering for Walter Dorwin Teague Associates.

GETTING AN EARLY START



ALL READY TO GO on the NRC Westward Ho! trip to Las Vegas, set for Oct. 17 are from left, Donna Robison, Grace Wiesner, John Barth, Dorothy Miller and Peggy Horton. The package tour which includes transportation, accommodations and special tours is an annual event sponsored by NRC at the Electro-Mechanical Division.

NORAIID Names New Directors, Officers

L. Lloyd Balsam, Electronics Division, was recently elected chairman of the board of directors of NORAIID Inc., Northrop's in-plant charitable organization designed to help Northrop employees in time of need. He replaces John Richardson, Aircraft Division.

Also elected to serve as board members for the coming year were Tom Earl, Cleve Fowler, Paul Jacobs, Frank Mathes, Dan O'Halloran, John K. States and Sal Xifo, all of the Aircraft Division; A. C. Morgan, Corporate offices; and Doug Leavenworth, Electro - Mechanical Division.

Jones Is Named Board Member of U.S. Steel Corp.

Northrop President Thomas V. Jones has been elected a member of the board of directors of the United States Steel Corporation, the world's largest steel producer.

Word of his election to this new directorship was announced in New York last week by Board Chairman Edwin H. Gott of U.S. Steel.

Mr. Jones is also a director of the Times Mirror Company and of Stanford Research Institute and serves as a trustee of both Cal Tech and Stanford University.

Newly elected NORAIID officers are Mr. O'Halloran, president; Mr. Fowler, vice president; Marie Tully, secretary; and Ernie Boren, treasurer. The board of directors also re-appointed Mrs. Tully as NORAIID administrator and Rudy Rivero, accountant.

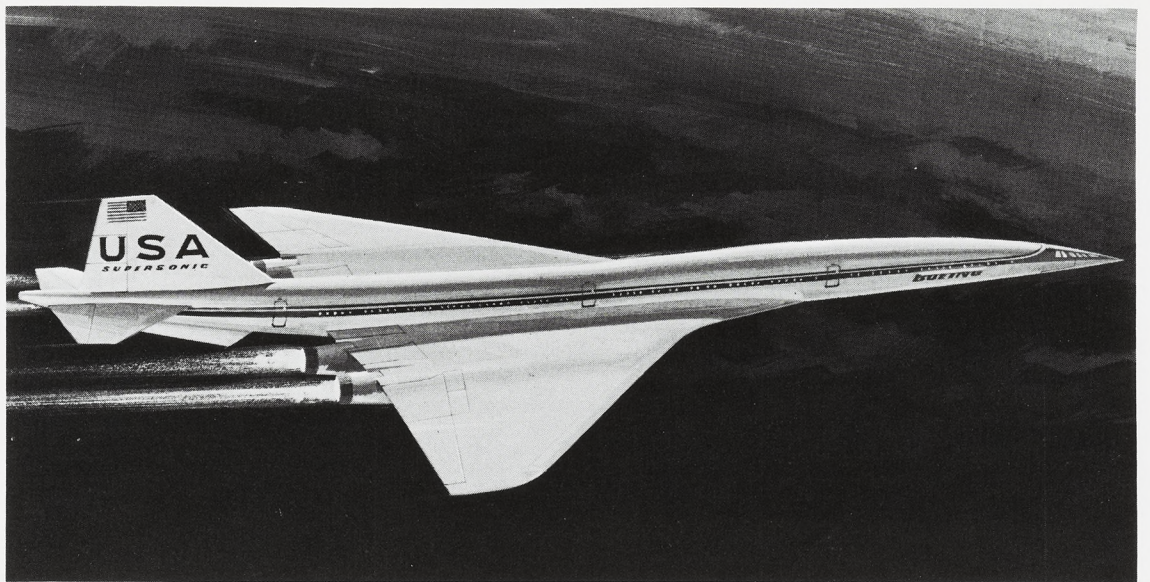
Re-appointed to serve for another year were all key facility committee members.

Aircraft Division's Hawthorne committee is chaired by James Schofield and includes Lucianna Clack, Ted Garvey, Bill Hayman, R. W. Robinson, Jo Roth, Bill Steen, J. H. Toms and Shelton Williams.

The Electronics Division Hawthorne-Palos Verdes committee is chaired by Harry Clark and includes Roland Gagon, Eloise Howell, Hollis Smith and Donald Weaver.

The Electro - Mechanical Division Anaheim committee, chaired by Harry Belcher, includes William Carey, Carl Jensen and Sally Moore. The Huntsville office is chaired by Charles White and includes Riley Ponder and Marlin Sloan.

Aircraft Division Edwards AFB is headed by Co-chairmen Kelly Burke and Lou R. Weltz and includes Frank M. Harrison and Frank Ramme. Tom Post is chairman, Aircraft Division Palmdale committee, assisted by Eutha Dame and W. W. White.



NORTHROP TO HELP BUILD U.S. SUPERSONIC TRANSPORT
President Nixon has asked Congress for necessary developmental funds.

President Nixon Seeks \$96 Million From Congress for SST Development

President Nixon has asked Congress for \$96 million in additional FY '70 funds to add to \$99 million from previous appropriations to push development of the United States Supersonic Transport.

Plans call for two prototypes to be built by The Boeing Company and General Electric in a government - industry program. Northrop Corporation has been named by The Boeing Company to produce two forward fuselage sections (41 and 42 minus nose tip radome).

Subject to government approval,

manufacture of hardware is expected to start in early spring of 1970 with the construction of tooling. This buildup of personnel will continue for the manufacture of detail parts and assemblies to early 1971 when it will reach a peak of an estimated 2,500 employees.

Out Front

Sections 41 and 42 together are approximately 34 feet long and will weigh approximately 4,500 pounds. Section 41 is the forward fuselage accommodating the flight crew compartment. Section 42 is the hydraulically operated articulated nose of the SST which can be raised and lowered to desired angles.

The structure of the SST is primarily titanium alloy to permit cruising flight at Mach 2.7 at altitudes of 60,000 to 70,000 feet.

Iran's New Satellite Station Open

An earth terminal satellite communications station built by Northrop Corporation will enable Iran, the historic crossroads of commerce and culture in the Middle East, to join the international satellite communications network.

The ground station will commence operations coincident with the opening in Tehran of the Second Asian International Trade Fair and is a vital link in Iran's program to spur economic development and international trade. The earth station is expected to greatly expand the nation's capacity for high quality international telephone, telex and telegraph services.

The earth station is located at Hamadan, 200 miles from the capital city of Tehran, and is linked to Tehran by a microwave system also installed by Northrop.

The \$5.25 million project is part of Northrop's growing involvement in the design, installation and operation of long range communications systems throughout the world.

The work in Iran was completed in 12 months by Northrop Page Communications Engineers, Inc. In addition to engineering and installation, Northrop Page also is conducting a 15-month training program for Iranian engineers and technicians to enable them to maintain and operate the station independently.

For more than ten years Northrop has been engaged in titanium research and development work. The company has produced complex titanium alloy assemblies for its own F-5 fighter and T-38 aircraft as well as for the F-101 and F-4H fighters. Northrop has accomplished a number of new advances in hot-forming and sizing techniques as well as machining, welding and diffusion bonding of titanium.

Over the past four years Northrop also has accomplished a number of research and development projects specifically for the Boeing SST. These include the production of three 12 foot by 14 foot all-titanium test wing boxes and detail parts fabrication of the cab structure for an SST pilot's compartment for test purposes. In addition, Northrop has produced development-type hardware consisting of titanium honeycomb and truss core panels.

President Nixon personally announced the decision to continue the SST program. "The SST is going to be built," he said. "I want the United States to lead the world in air transport."

'Northrop Nights' Set at Three Utah Universities

Representatives of three Northrop Corporation divisions will address college students in a series of "Northrop Nights" planned at three Utah universities this month.

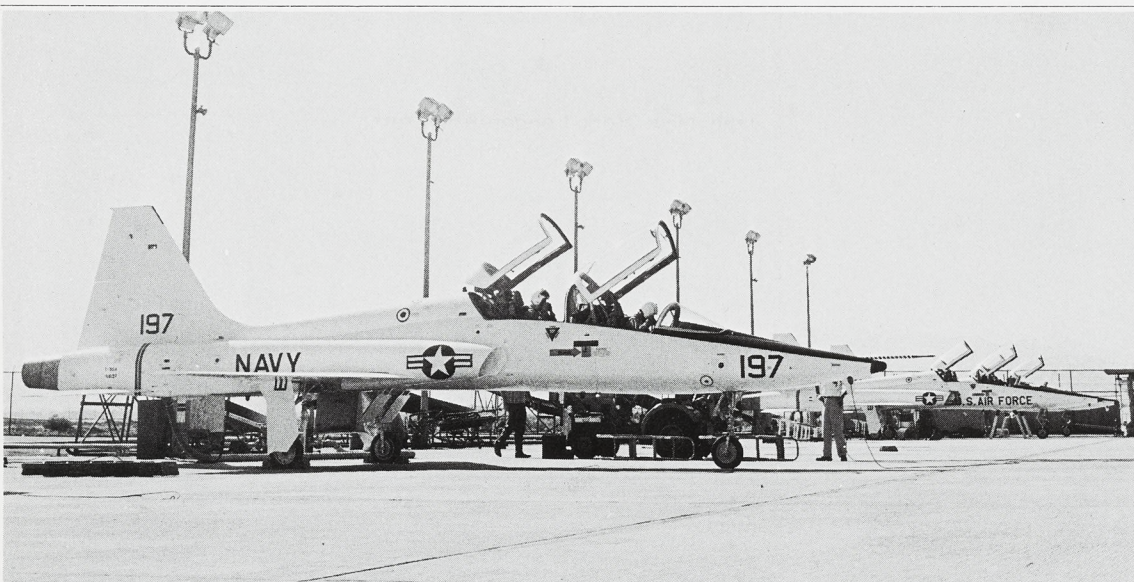
The delegation, headed by M. A. Maurer, Ventura Division vice president and manager, Production Operations, will visit Utah State University, Weber State College and Brigham Young University on Oct. 21, 22, and 23, respectively.

Accompanying Mr. Maurer will be Harvey Linebarrier of the Ventura Division, Al Langlois of the Aircraft Division and George Fritzel, Electronics Division.

In conjunction with the student chapter of the American Society of Tool and Manufacturing Engineers, they will tour the campuses, meet key staff members and then give an evening program to students.

The program will introduce students to Northrop's multifaceted industrial and aerospace role. Films and slides will augment short talks, followed by a question-answer session.

Frank E. Lund, Ventura, is coordinating the tour.



U.S. NAVY ORDERS NORTHROP T-38 TALONS
First T-38 with Navy markings on the Palmdale flight line.

TALON JOINS U.S. NAVY

Test Pilots to Train in Northrop T-38

The U. S. Navy has joined the users of the Northrop T-38 supersonic trainers.

The first of five Talon trainers ordered for the Navy Test Pilot School, Naval Air Test Center, Patuxent River, Md., was delivered this week.

The T-38's, procured by the Navy through a Military Inter-service Procurement Request from the Air Force Systems Command, will be used to train Navy, Army, Air Force, civilian and allied nation test pilots.

The Naval Test Pilot School, now under the command of Capt. R. P. Prichard, Jr., was started in 1945 and was the first school of its kind in the United States. Its primary function is to qualify experienced aviators and selected engineers as test pilots and test project engineers.

In selecting the Talon, the Navy acquires a supersonic air-

plane which will permit the safe exploration of fringe areas of flying qualities, stability, and performance required by the rigorous flight curriculum of the Navy

DAMMAN TO LEAD AFA CONVENTION

Floyd F. Damman, Aircraft Division, will serve as chairman of the Air Force Association's California state convention meeting Oct. 17-19 at the Edgewater Hyatt Hotel, Long Beach.

Mr. Damman is currently president of the association's Long Beach Chapter.

Principal speaker for the event is Senator Barry Goldwater of Arizona. Mr. Damman said the program includes an Aerospace Education Conference, a productive discussion of the advancement of aerospace education and development of cooperative programs for California schools,

Test Pilot School.

T-38's are currently being used by the Air Force in flight test activities at Edwards AFB, Wright Patterson AFB and Eglin AFB.

Since the first T-38 entered the Air Force inventory in 1961, nearly 1,100 have been delivered to the Air Training Command. Approximately 14,000 USAF student pilots have been graduated in the Talon, and more than two million flight hours have been logged by the aircraft in the USAF training program. T-38's are also used by the Air Force of the Federal Republic of Germany for pilot training in the U.S. and by NASA to maintain flight readiness of its astronauts. It is now in use at 10 ATC bases.

The T-38 can become airborne after a takeoff run of only 2,300 feet. It climbs at a sea level rate of 30,800 feet per minute and can operate at a ceiling above 54,000 feet.

Simulator Aids Training of Army Helicopter Pilots

Northrop is aiding the U.S. Army in an unusual exploratory study in the field of helicopter pilot training.

The program, now in progress, is investigating the possibility of substituting ground based simulator training to some degree for actual helicopter flight training in the pre-solo period of a pilot's development. This simulator training program is a direct result of an Army research program which investigated the handling qualities of helicopters.

Aircraft Division personnel are supporting the program under contract to the U.S. Army Materiel Command's U.S. Army Aviation Materiel Laboratories (AVLABS), Fort Eustis, Virginia.

Robert P. Smith is the AVLABS project officer. Major Lance Young of Fort Wolters, Texas, is project coordinator. Instructors from Fort Wolters, Texas, assigned to the program are Donald R. Morgan, Joseph Saunders, G. B. Davis and CWO Gilbert Lazo.

Currently, more than 8,900 helicopter students phase into training at the USA Primary Helicopter School at Fort Wolters annually. Their program includes ground school and 16 weeks of

primary flight training.

Northrop modified its rotational simulator to represent an Army OH-13G helicopter. An instructor's console is located behind the cockpit. Engine and rotor sounds, from the starting of the engine through full throttle, are electronically generated. From terrain photographs, Northrop technicians created a pilot's eye view of the rolling Texas training area. It moves below and around the pilot as he maneuvers. In short, he gets nearly the full spectrum of sights, sounds and motion as he operates the simulator.

Two Groups

During July, six Army trainees ready to enter the 16-week flight training program were brought to Hawthorne, along with their instructor pilots and an academic instructor.

In August, a second group of six Army trainees, with instructors, arrived.

Each group follows a similar program for two weeks.

Half of each work day is taken in classroom work, just as at Fort Wolters. The other half is devoted to instructions and flying the simulator. Each trainee receives from 10 to 11 hours of time in the simulator.

Each trainee receives an indoctrination flight in a helicopter prior to commencing the simulator instruction period, and during the second week receives about 30 minutes of hovering flight instruction.

Northrop's John Sinacori, principal investigator, Jack Holloran, Neel Tyree, Herb Cooles and Vernon Carter coordinate the company phases of the program.

Mr. Sinacori explained that the present effort is aimed at development of a mathematical representation of a training helicopter as well as training methods which are unique to the kind of simulator used in the study.

The current program is intended to examine the effectiveness of simulator training which is substituted for actual flight training during the pre-solo phase.

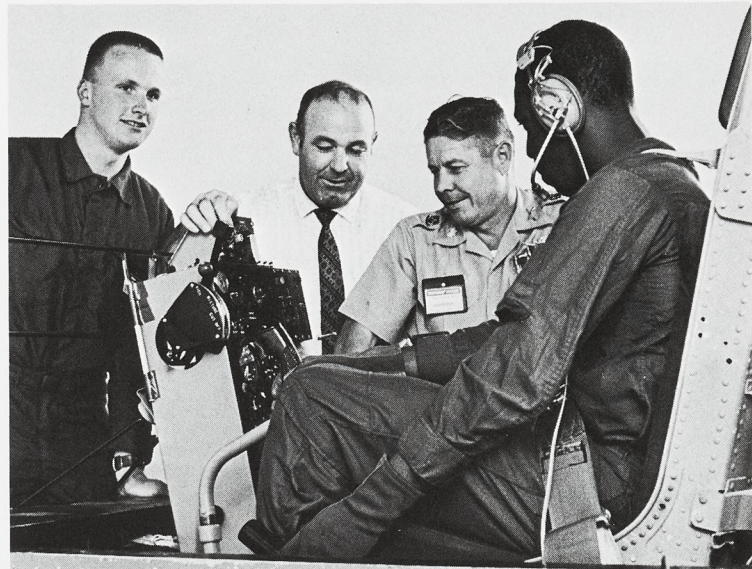
While Northrop will document its finding in the program for use by the Army, final analysis of the program will be spread over an extended period of time. For example, a detailed study will be made of the skills and proficiency demonstrated by the simulator-trained students in comparison with those following routine training procedures.

Cost Savings

The possible advantages of this approach in training large numbers of pilots are obvious.

Advocates of extended ground simulator training as a substitute for part of flight training note that one simulator could replace two helicopters, an obvious economical advantage. They also contend simulator training provides more opportunities for direct contact between instructor and student, thereby increasing the transfer of knowledge. And, they add, simulators could be used year-round without regard to weather which sometimes curtails flight training.

In summation, it is predicted that it might be possible to conduct as much as 70 per cent of any primary flight training effort with simulators.



ARMY MEN WITH NORTHROP SIMULATOR
Army helicopter pilot candidate W. P. Shobe, right, prepares to log time in Northrop simulator as, from left, candidate Mike McKinney, Joe Saunders, civilian instructor, and Major Lance Young look on.

Pan American Announces Initial 747 Schedules

Fifteen cities around the world will be served by 154 weekly flights within a brief span of time after inauguration of Boeing 747 jetliner service by Pan American World Airways.

Pan Am has announced its initial 747 schedules with indications additional routes will be started later. The beginning of this service is contingent upon aircraft deliveries.

World Routes

After its first 747 flight, along the New York-London-Frankfurt route, Pan Am will add flights over the Atlantic from New York to Paris and Lisbon-Barcelona. Its announced Caribbean routes link New York with Bermuda, San Juan and Montego Bay. Across the Pacific, Pan Am will fly the 747 from Los Angeles and San Francisco to Honolulu, Hong Kong and Bangkok. And there will be Polar route flights—Los Angeles-San Francisco to London-Paris.

Norman P. Blake, Pan Am senior vice president of marketing, has indicated the public is not only waiting for the 747, but seems eager for it. For example, Pan Am already has received 5,000 reservations for the first 747 flights from the United

States alone, Mr. Blake said.

Pan Am was the first airline to order the 747 and will be the first to place it in service on regular scheduled routes.

Do You.... Remember?

(From The Northrop News Files)
25 Years Ago

Family Day throngs composed of Northrop personnel and their immediate families, an estimated 65,000 people, crowded the Hawthorne facility for tours and flight demonstrations.

15 Years Ago

Delivery of F-89 Scorpions has been right on time with "100 per cent performance," according to F. W. (Bob) Lloyd, general superintendent of Manufacturing Operations. ... The Northrop Recreation Club Ladies Softball Team beat their Hughes counterparts, 11-2.

5 Years Ago

The Air Force OV2-1 satellite program now being developed by Northrop Space Laboratories has passed its first major milestone. ... John B. Clark has retired after 17 years as director of Industrial Relations at Norair.



KEY PARTICIPANTS IN ARMY SIMULATOR PROGRAM
Northrop men pose with military and civilian personnel.

Northrop Systems Manager For New Jet-Age Airport

Northrop Corporation has been named systems manager for the planning and construction of a new jet-age airport in Puerto Rico.

To be known as the Southwest International Airport, the new facility is scheduled to be in operation in the early 1970's. The airport will be designed from the outset to meet anticipated traffic requirements in 1980, and will permit planned expansion afterward to meet the needs of Puerto Rico's burgeoning air traffic predicted for 1990.

The airport is expected to cost approximately \$20 million in the first stage of construction and ultimately exceed \$30 million.

Northrop will carry out the program through its subsidiary, Page Communications Engineers, Inc., under contract to the Ports Authority of the Commonwealth of Puerto Rico.

In addition to systems management of the Southwest International Airport, Northrop will examine certain features of the

proposed expansion of the existing San Juan International Airport on the Island's north shore, to meet the anticipated traffic growth there.

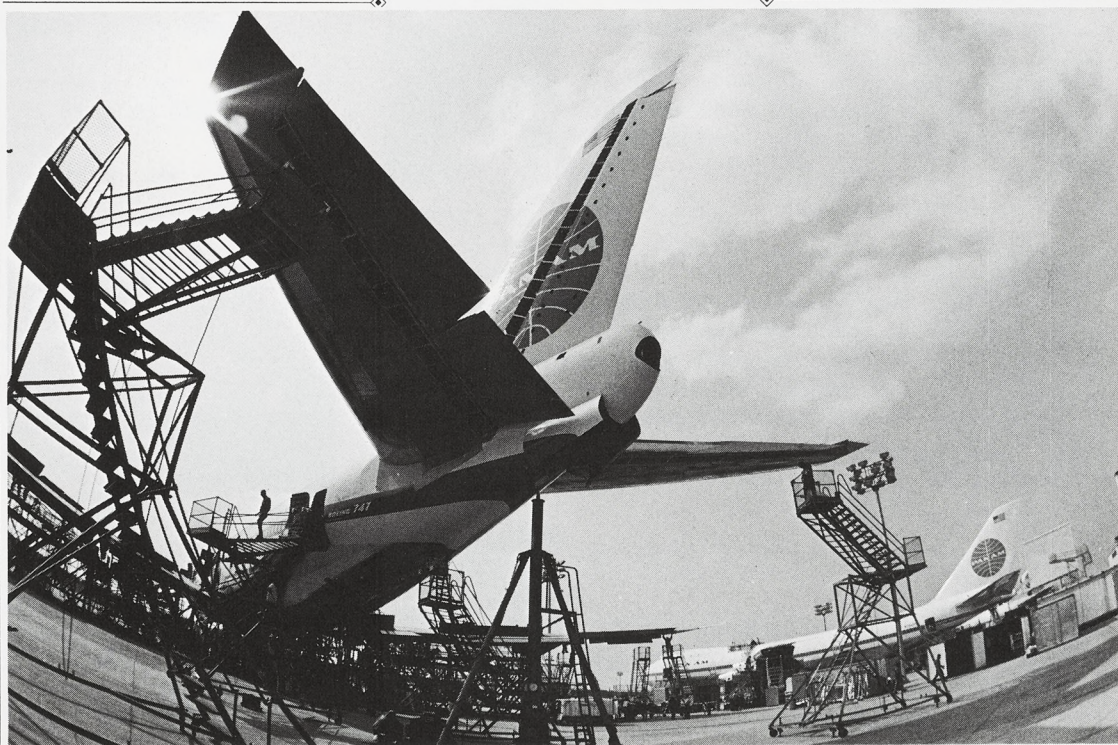
Teams of Northrop engineers, economists and aviation operations experts are currently working in Puerto Rico on the program. The Northrop specialists will be associated with Puerto Rican architects and engineers on the project.

Northrop, a major aircraft, communications and electronics firm, has carried out previous air transportation projects in a number of countries, including Iran, Chile, Peru, Ethiopia and Indonesia.

THEATRE DUCATS

Personnel Activities continues to offer bargain-rate (\$1.75 tickets for \$1 each) ducats for Pacific Drive-In Theater film attractions. They are good at all times except during special engagements or reserved features.

**IS IT NEWS?
CALL EXT. 4273
HAWTHORNE**



PAN AMERICAN BOEING 747's ON FLIGHT LINE
Unusual "fish eye" photograph by Northrop's Robert Thornton.



SHOOTING THE COLORADO RIVER'S DEUBENDORFF RAPIDS
Northrop's Elmer Cain photographs raft traveling backwards.

RIVER RAFT RIDE

Seven See Grand Canyon From Bottom

There are many ways to see the Grand Canyon, according to six Northrop Mountaineers. One of the most spectacular is from the bottom.

The Mountaineers spent a week this spring winding through the canyon on the fast and sometimes violent Colorado River on a J rig raft.

The J rig raft they rode was made up of five pontoons running lengthwise with a 33 horsepower engine on the rear. The raft had two flexible joints and thus three sections. The raft was designed to flow with the river, bending and twisting to conform to the water's surface.

Eldon Burgess, Ken Ferrell,

Bob Brough, Elmer Cain, Byron Holman and John Vansickle, all of the Aircraft Division, started their raft journey at the Phantom Ranch and left the river at Temple Bar on Lake Mead, a distance of over 200 miles.

Quite a Sight

The turbulent and unpredictable passages through rapids and the views of towering canyon cliffs and waterfalls were the outstanding experiences of the trip.

Each night the group slept in sleeping bags on the river bank and during the day the raft put into shore for exploring side canyons.

On hikes the group often fol-

lowed clear, tributary streams for miles, passing groups of brilliant desert flowers and, occasionally, wild burros.

One member of the group found the river to be rough in a special way. A surge of water damaged his movie camera while he attempted to take some shots from the bow of the raft in some "mild" rapids and while on a hike a stream drenched his 35 mm camera.

The Mountaineers, who try to schedule one big trip every year, were flown from Hawthorne and back in rented planes piloted by Gordon Madison, Flight Test, and Walt Martin, Aerodynamics Research.

Employee's Son Scores Two Touchdowns for USC

One of the key players on the University of Southern California football team this season is Fullback Charlie Evans.

Charlie is the son of Byrda Evans, C-5 ground support equipment assembler, in the Hawthorne facility. Thus far, in the Trojans' first two outings against Nebraska and Northwestern, Charlie has carried the ball 16 times for 68 yards, caught four passes for 40 more yards, and has scored two touchdowns.

"We're real proud of Charlie's performance," said a team spokesman. "He is not only a good running back and receiver, but an excellent blocker, too."

First Chance

Charlie, who stands six feet one inch and weighs 218 pounds, transferred to USC last year from the University of Utah where he played freshman ball.

As a transfer student, Charlie was required to sit out the Trojans' 1968 season—at least during league games. But on the practice field, however, he ran against the USC defense, posing as the fullback of the Trojans opponents last year.

"I knew everybody else's offense better than our own," remembered Charlie.

"It was tough never getting to play in a real game, but I felt I was making a contribution."

"I knew my chance would come and I'd get to play."

Charlie was right.

He was picked as the Trojans number one fullback shortly after spring practice began and his performance thus far indicates he will remain number one not only this season, but next season as well.

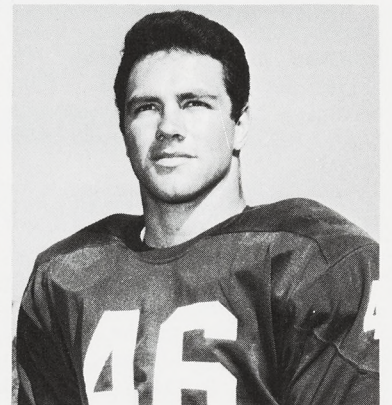
Trojan Coach John McKay, commenting on Charlie's ability,

noted that "he could play every position but quarterback."

An all-around athlete, Charlie also excels in track where he has recorded a personal high of six feet, six inches in the high jump, and over 23 feet in the long jump.

After completing his studies in business at USC he hopes to play professional football.

Employees wanting to see Charlie in action can do so this Saturday at the Coliseum where the Trojans take on Stanford.



Charlie Evans

Ventura Employees Recall Early Days Of Northrop Planes

Aircraft design and performance growth in the past few decades comes to mind when Ventura Division personnel Al Moon and Jim Donnell start chatting.

They both worked on the Northrop-built Gamma aircraft for the Northrop Aircraft Company in the early 1930's, predecessor to the modern Northrop Corporation.

Mr. Donnell, now supervisor of Liaison Engineering at Ven-



Northrop Gamma

tura, was a mechanic on the craft when it was based at Mines Field, now Los Angeles International Airport.

"There were several versions of that plane," Mr. Donnell remembers. "The one-place version was piloted by Frank Hawks to a trans-continental speed record. Another job was bought by Texaco Oil Company and carried six people."

Among those who worked with Mr. Donnell were Carl Hoffman, Slug Mulvaney, Bill Diener, Ed Crandall, Kenny Farrar, Tom Ruble and Jim Jurret. Some still work for Northrop.

Mr. Moon, a planner at Ventura, was taking a course in aircraft mechanics at Wold-Chamberlain Airport, Minneapolis, Minn., when the Gamma flew in. He took some photographs and then worked on the airplane.

The Gamma, Mr. Donnell recalls, had a 14-cylinder Pratt & Whitney engine capable of "425 to 485 horsepower." Its speed was in the area of 200 knots. "That was a big engine, then," Mr. Donnell noted.

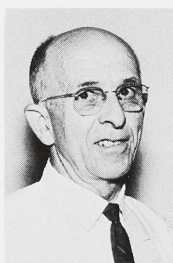
OPINIONS, PLEASE—How Large a Voice Should Students Have in College Administration



Mr. Hurt

Samuel Hurt, master mechanic, Aircraft:

I would say to the extent that statements from students should be carefully examined and accepted by the faculty before adoption.



Mr. Hughes

H. A. Hughes, engineering specialist, Aircraft:

Students should not have more than a 10 per cent voice in college administration. They don't know what they want to do with their lives and besides, adults are putting up the money for schools in the first place.

Jeanne Conkling, contracts clerk, Ventura:

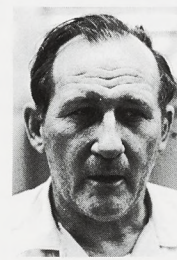
Very little voice. Students are there to learn, not to direct the administration in any way. Students causing trouble should be expelled. If my son were a dissenter, I would take him out and place him some place where he would fit in.



Mrs. Conkling

Andy Mertus, milling machinist, Ventura:

Personally, I think students should have a partial say. The majority of the decisions, though, should be given to the administrative body.



Mr. Mertus



Mr. Beckner

Ron Beckner, electrical and electronics specialist, Electro-Mechanical:

Maybe because I am not too far out of college myself, I think they should have more, but only to a certain degree. College officials must still retain complete control.



Mrs. Fish

Terry Fish, teletype and switchboard operator, Electro-Mechanical:

I have two sons in college and after talking to them, I think students could profitably be given a larger voice in college administration. Today's young people are more mature than a lot of the old fogies think and are capable of assuming more responsibility than they are given.



Mrs. Piercey

Kay Piercey, release clerk, Electronics:

I think if students go on for a higher education they should be satisfied with the present rules of school administration.

Jack Anderson, master scheduler, Electronics:

I think the voice in school affairs should come from the people who pay for the schools—the taxpayers. Students should have a voice, but if it is too much it could be dangerous to the welfare of our country.



Mr. Anderson

Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

Mustang, 1965 h/top, r/h, V-8, stick, \$1,100. 213-324-8618. A
Excalibur, 1967, 2-dr. roadster, 3,600 mi., \$6,450. 213-375-6971. A
Austin Healey, 1967 Sprite Mark III, new brakes, recent o/haul, \$900. 714-821-1075. A
Ford, 1956, 4-dr., V-8, auto. trans., \$95. 213-672-6188. A
Pickup Truck, 1965 GMC, ¾-ton, wide side, 8' bed, r/h, hvy. duty trans., extras, \$1,500. 213-676-6980. A
Continental, 1965, \$2,200. 714-892-0460. A
Buick, 1959, full power, r/h, \$150. 213-542-4245. A
Ford, 1955 Thunderbird, \$1,095. 213-695-1687. A
Dodge, 1963 Dart, auto., p/s, 2-dr., r/h, 145 h.p. eng., \$575. 213-542-3607. A
Chevrolet, 1964 Impala, \$400. 213-372-3373. A
Karmann Ghia, 1959, 1965 eng. & trans., r/h, \$450. 213-370-0435. A
Chevrolet, 1964 Super Sport, a/c, 327 eng., AM-FM radio, \$1,000. 213-779-3745. A
Porsche, 1958, chrome whls., tuned exhaust, \$1,100. 213-379-9628. A
Pontiac, 1963 Le Mans, \$550. 213-372-3967. A
International Scout, 1962, 4-wheel drive, \$900. 213-378-0875, 213-375-4216. A
Corvair, 1962, 2-dr. cpe., \$300. 213-676-0992. A
Volkswagen, 1968, \$1,495. 213-927-0600. A
Oldsmobile, 1961, Dynamic 88 spt. cpe., 2-dr., V-8, p/s, p/b, auto. trans., r/h, \$300. 213-320-6560. A
Oldsmobile, 1965 Cutlass, convt., all power, \$1,200. 714-639-1935. A
Jaguar, 1958 XK 150 coupe, AM-FM, stereo, \$1,300. 213-892-1511. A
Ford, 1964 Fairlane spt. cpe., V-8, 289, tach, 4-spd., stereo, \$725. 805-495-5368. A
Station Wagon, 1964 Ford Country Sedan, stick shift, \$600. 213-329-6848. A
Cadillac, 1962 sedan De Ville, full power, \$850. 213-326-0773. A
Corvette, 1963, 327, 340 h.p., \$1,650. 714-535-6194. A
Station Wagon, 1962 Opel, 3-spd., \$295. 213-676-7109. A
Chevrolet, 1967, '63 327 eng., V-8, Hurst shift, FM radio, htr., tach, \$400. 213-377-8091. A
Dune Buggy, Myers Manx, 1964 VW eng., Gates tires, \$2,100. 213-377-6654. A
Corvette, 1959, h/top, '63 327 eng., 4-spd., \$800. 213-373-2365. A
Chevrolet, 1962 Impala SS 327, console, p/s, a/c, \$450. 213-757-3470. A
Volkswagen, 1966 fastback, radio, \$1,350. 213-638-4954. A
Rambler, 1968 2-dr., auto. trans., r/h, approx. 1,700 mi., \$1,650. 213-465-3166. A
Pontiac, 1965 G.T.O., 389 cu.in., 4-spd., \$1,595. 213-639-4132. A
Ford, 1958 Victoria, 2-dr., Cruise-O-Matic trans., \$275. 213-675-8278. A
Cougar XR-7, 1967, 289 3-spd. stick, \$1,750. 213-370-7092. A
Mustang, 1969 Fastback, fact. air, p/b, p/s, \$2,995. 213-379-0324. A
Station Wagon, 1965 Ford Country Sedan, p/s, p/b, r/h, \$1,450. 213-675-5210. A
Pontiac, 1962 Tempest, 2-dr., r/h, auto. trans., \$400. 213-293-2161. A
Oldsmobile, 1968 Cutlass, 2-dr. h/top, auto., p/s, p/b, a/c, r/h, \$2,700. 213-832-8209. A
Corvair, 1963 Monza, eng. recently rebilt., 4-spd., \$475. 213-762-5439. A
MGB, 1967 GT, wire whls., 23,000 miles, \$2,250. 213-329-2926, 714-644-2887. A
Volkswagen, 1961, \$495. 213-372-3533. A
T-Bird, 1959, all power, \$525. 213-423-1570. A
Pontiac, 1960 Ventura, big eng., tri-power, Borg-Warner 4-spd., \$395. 213-379-4672. A
Buick, 1964 Riviera, min. bid, \$1,095; Bonneville, 1966, min. bid, \$1,195. Credit Union ext. 1117. A
Chevy II, 1962 Nova 400, 6-cyl., 2-dr. h/top, p/b, \$895. 213-427-8734. A
Pontiac, 1964 LeMans, 2-dr. h/top, 326 cu. in. eng., a/c, p/s, auto. trans., \$1,095. 714-892-0171. A
Bune Buggy, Meyers Tow'd, 1500 cc eng., Zenith 32NDIX carb, Scat intake & dual exhaust, many other extras, \$1,600. 213-454-0823. A
Volkswagen, 1968, auto. stick shift, radio, \$1,895. 805-643-2481. A

Household Items For Sale

Bed, king size, orthopedic mattress, frame, linen, pillows, dble. box springs, \$135. 213-372-1267. B
Chair, Selig Danish modern, teakwood, orange pillows, \$40. 213-869-8553. B

Household Items For Sale

Occasional Chairs, 2, Italian Provincial, fruit-wood, cane back, gold velvet seat, \$45. ea. 213-372-1632. B
Washer, General Electric, 2-spd., Filter Flo, \$75. 213-321-1284. A
Mattress, full size, box springs, frame, \$35. 213-323-3202. B
Washer, Whirlpool, 4-cycle, 2 yrs. old, \$85. 213-679-5243. B
Bar, 6' red vinyl w/sink, 4 padded stools, \$65. 213-374-4703. B
Stove, 30" apt. size Kenmore, white, glass oven door & timer clock, \$75. 213-326-6214. A
Stove, 30" elec., Sears Kenmore, rotisserie, coppertone, 6 yrs. old, \$75. 213-679-7734. B
Drapes, 1-way draw, 95x144, antique satin off white, \$20. 213-377-2160. B
Box Spring, mattress, dble. bed size, \$10. 213-931-2504. B
Dryer, elec. Hotpoint Decorator 12 model, used 2 yrs., \$60. 213-547-9329. B
Dining Room Set, 40x60 table & 3 fills, 6 chairs, table pad, \$100. 213-378-2790. B
Bed, dble., w/foam mattress, \$30. 213-324-9130. B
Range, Wedgewood, 4-burner, center grill, \$60. 213-379-2980. B
Refrigerator, Gibson, white, elec., std. size, \$10. 213-372-8157. B
End Tables, walnut, 2 drwrs. in each table, \$20 ea. 213-541-3000. B
Coffee Table, distressed maple, w/corner & end table, Early American design, \$85. 213-542-2287. B
Living Room Sectional, 4-pc., modern, \$10. 213-377-7156. B
Dryer, G.E. deluxe, \$55. 213-399-8045. B
Dryer, Sears, gas, white, \$25. 213-377-5853. B
Sectional Sofa, 2-pc., gray, \$35. 213-373-5952. B
Crib & mattress, \$15. 213-675-7938. B
Sofa, matching chair, blue-green tweed, \$100. 213-377-6435. B
Stove, Gaffers & Sattler, gas, coppertone, \$85. 213-672-1801. B

Miscellaneous For Sale

Books, 30 vols. of recent Tom Swift adventures, \$15. 213-370-5423. C
Motorcycle, 1966 Honda CL 160 Scrambler, \$295. 213-831-4586. C
Golf Cart, Ram, w/seat, adjust. auto. folding cart, 14" whls., \$20. 213-328-3020. C
Record Changer, Garrard, \$75. 213-345-3634. A
Bicycle, Schwinn Pixie, boy's, 16", \$10. 213-375-9689. C
Dog, AKC, Labrador retriever, bitch, \$250. 213-881-2604. C
Wheels, 4-spoke, chrome, wire, for 1960-1964 Corvair, \$150. 213-671-0813. C
Ski Boat, 15', glass, 50 h.p. Mercury motor, trailer, \$695. 213-421-7029. C
Planer, 5" Craftsman, w/stand, ½ h.p. motor, \$75. 213-457-9186. C
Radio, G.E., 10-band, worldwide, portable, AM-FM, marine, long wave, 120V or batteries, \$170. 213-596-7600. C
Sailboat, 13' O'Day Widgeon, trailer, access., \$775. 213-474-5682. C
Recorders, wooden flute, soprano & tenor, \$20. 213-426-4060. C
Home, 3-bdrm., den, 1¾ baths, bltins, covered patio, dble. gar., fenced lge. corner lot, take over G.I. loan, will take 2nd T.D. Canoga Park, \$27,500. 213-322-7716. C
Telephone Answering Device w/remote monitor, \$300. 213-545-5100. C
Slide Copier, Aimes-Hershey, 82A filter, \$40. 213-675-3892. C
Tape Recorder, Pencrest, solid state, a.c. only, \$45. 213-823-1788. C
Motorcycle, 1965 Mustang trail machine, driven less than 25 miles, spare tire, \$275. 213-867-5809. C
Joiner-Plane, Craftsman, 6½", never used, \$95. 714-897-5874. C
Regulator, scuba, U.S. Divers, aqua master, 2-state, 2-hose, \$60. 213-373-3128. C
Engine, Chev. V-8, \$10. 213-675-2159. C
Boat, 14' outbd. runabout, glass o/wood, 25 h.p. Evinrude, trailer, \$400. 213-867-5769. C
TV, 23" color, Admiral console, sliding door cabinet, \$250. 213-324-5573. C
Organ, Hammond A-100, \$2,100. 213-833-4088, 213-831-5473. C
Boat, 18' Glasspar Seafair sedan, outbd., 75 h.p. Evinrude, many extras, \$1,295. 213-833-4811. C
Camera, Leica IIIF, f.2 50mm Summittar & f.4 90mm Elmar lenses, Universal viewfinder, \$250. 213-697-2026. C
Surfboard, 7'10" Mobley, pintail V, \$60. 213-374-8608. C
Wig, dk. brown, med. length, case, \$25. 213-326-4459. B
Camping Trailer, 15' Terry, \$450. 213-371-3140, 213-676-9134. C
Pups, reg. AKC toy poodle, 2 males, 2 females, \$75-\$125. 213-437-1183. C
Books, Readers' Digest condensed, other misc. books, 3 for \$5. 213-674-1847. C
Guitar, amplifier, Fender Stratocaster, 3 pick ups, hard shell case, \$350. 213-370-6400. C
Motorcycle, 1967 Bridgestone, 50 cc, elec. starter, \$75. 213-644-9079. C
Motorcycle, 1968 Hodaka, 100 cc, \$250. 213-671-1012. C
Aquarium, 10 gallon, \$5. 213-867-1479. C
Lot, Salton City, 4 blks. to yatch club, \$990 equity, \$250 & assume \$45 mo. pymts., \$4,995. 714-892-3946. C

Miscellaneous For Sale

Motorcycle, Suzuki, X-6, 250 cc, trail equipped, chrome frame, \$350. 213-242-9723. C
Flute, Bundy, \$75. 213-370-1485. C
Pup, Labrador, male, black, AKC, 8 mos. old, \$175. 213-377-6658. C
Motorcycle, 1968 Yamaha Scrambler, 350 cc, \$550. 213-534-1094. C
Typewriter, Remington, portable w/travel case, \$35. 213-836-3172. C
Motorcycle, 1964 Honda, 150 cc, \$200. 213-696-301. C
Radio Control, Orbit IC 4-8, 2 stick, in orig. box, \$270. 213-675-3885. C
Carburetor, 3-2 w/manifold from 1966 Grand Prix 389 eng., \$85. 213-644-1720. C
Typewriter, standard, Hermes Swiss made, elite type, \$60. 213-679-3131. C
Rifle, Winchester Mod. 70, 308 cal., 2¼ power Weatherby Imperial scope, detach. sling, recoil pad, carrying case, \$135. 213-324-1949. C
Camera, Polaroid Land, mod. 350, incl. carrying case & flash attach., \$120. 714-535-7679. C
Snowmaker, falling snow effect for Christmas tree, elec. motor, pump & snow, \$20. 213-675-3098. C
Top Carrier, Sears all weather, for station wagon, 24 cu. ft., 48"x72", used once, \$32.50. 213-676-0938. C
Projector, Bolex 18-5L Super B, w/14-25mm f1.3 zoom lens, auto. threading w/slow-motion & reverse, \$120. 213-324-6784. C
Pool Table, slate base, w/access., never used, \$175. 213-329-1279. C
Surfboard, 8'9", pintail, flat bottom, \$45. 213-567-3480. C
Boat, 30' lge. bait tank, S to S radio, sleeps 2, \$1,250. 213-751-6250. C
Acreage, 2½ acres, Antelope Valley, \$35 dn., \$35 mo., no int., \$3,450. 213-378-1026. C
Razor, elec. Sunbeam Shavemaster 777, \$8. 213-378-5175. C
Tires, 2 9" slicks for 15" rims, \$35. 213-677-4035. C
Bowling Ball, shoes & bag, \$7.50. 213-377-3806. C
Camera, Canon Pellix SLR, 1.4 lens, 1/1000 sec., case, \$150. 213-670-5286. C
Mini Bike, 7 h.p. West Bend, clutch, drum brake, \$140. 714-826-9931. C
Valve Covers, Offenhauser, for Chev. V-8, \$25. 714-838-7161. C
Lot, 25' x 80' level, on hilltop, all utils. in, close to Arrowbear Lake, \$2,300. 714-892-9318. C
Motorcycle, 1968 Honda, 175 cc, \$450. 213-679-4723. C
Motorcycle, 1968 Yamaha Scrambler, 305 cc, \$500. 213-675-2005. C
Camera, Studio, 8 x 10 w/12" lens, \$250. 213-379-7342. C
Gun, S & W auto., 38 cal. mod. 52, 2 clips, \$170. 213-372-8019. C
Duplex on C-4 lot, Long Beach area, will finance, low down, \$12,900. 213-371-6918. C
Motorcycle, 1967 Yamaha, 100 cc trail model w/GYT kit, extras, \$250. 213-532-7175. C
Golf Clubs, Powerbuilt woods, 1, 2, 3, 4, \$40. 213-254-1225. C
Drill Motor, ¼" w/drill press, conversion stand, \$15. 213-545-6719. C
Chairs, set of 4, outdr. folding type, alum. frame, plastic webbing, \$15. 213-644-7870. C
Mini Bike, 1969 3 h.p. Taco, \$150. 213-676-3379. C
Motorcycle, 1966 Honda Superhawk, CB 77, 32 h.p., 338 cc, \$350. 213-547-4141. C
Motorcycle, 1968 Kawasaki, 120 cc TR, \$350. 213-789-5791. C
Copier, compact 3M Casual, never used, \$50. 714-544-3811. C
Travel Trailer, 1960 Oasis, 18½', self-contained, awning, many extras, \$1,500. 213-370-0250. C
Tape Recorder, Craig, 4-track cartridge, incl. 40 4-track tapes, \$220. 213-372-1386. C
House, 3-bdrm., 1¾ bath, family rm., landscaped, 5 minutes to Electro-Mech. Anaheim, \$26,950. 714-537-5827. C
Heater, portable, elec., \$5, other items, various prices. 213-755-7521. C
Motorcycle, 1968 Honda 90 Scrambler, \$225. 213-325-8932. C
Stereo, portable, 1969 Sylvania, \$80. 714-524-1753. C
Shutters, wood, split-folding type w/movable louvres, h/ware mounted, 2 sets for 36x48 windows, \$25 set, 2 sets for 36x54 windows \$30 set, or 4 sets for \$95. 213-679-2864. C
Own Your Own Apt, 2-bdrm., 2 baths, all elec., dps., cpts., patio, pool, party rm., hobby shop, enc. 2-car gar., adults, \$24,000. 213-327-8047. C

Wanted to Buy

Sewing Machine, best quality Singer, Pfaff or Necchi, reasonably priced, preferably not over 3 or 4 yrs. old. 213-377-0625. D
Chevy II, Comet or Falcon, 1960 or '61, 2-dr., condition not too important, providing it can be reasonably rebuilt. 714-539-5812. D
Engine, 1952 or '53 Mercury or complete car. 213-379-9670. D
Pup, collie or sheltie, mixed o.k. or boxer, no papers necessary, prefer male, housebroken preferred, but will train, \$25 or less. 714-837-6067. D

(Free) To Be Given Away

Kittens, 5 wks. old, to good homes. 213-670-7940. F
Pups, miniature collie & cocker spaniel, 6 wks. old. 213-644-5153. F

Rentals Offered

Apt, 2-bdrm., unfurn., upper, bltins, cpts., no pets, 1 child o.k., close to Aircraft Div., \$140. 213-676-7423. G
Apt, 2-bdrm., bltins, cpts., dps., gars., no children or pets, \$150 mo. 213-375-6715. G
Cabin, Lake Arrowhead, close to lake & village, f/place, \$65 wk., \$25 w/end. 213-887-6287. G
House, 2-bdrm., 2 baths, all elec., adults, option to buy, \$200 mo. 213-324-0274. G
Apt, 2-bdrm., cpts., dps., disp., closed gar., \$155 unfurn. 213-375-2091, 213-375-9397. G
Cabin, 3-bdrm., Lake Arrowhead, 2 baths, sleeps 10, completely furn., incl. washer & dryer, \$150 wk., \$75 w/end. 714-528-2303. G
House, 4-bdrm., 3 baths, cpts., dps., family rm., 2-story, bltins, pool, avail. Dec. 1, El Segundo, \$400. 213-372-4691. G
House, Torrance, newly remodeled 3-bdrm., 1½ bath, family rm. & den, bltins, f/place, cpts., dps., \$295 mo. 213-320-3744. G
Apt, 2-bdrm., cpts., dps., patio, pool, no pets, \$145. 213-325-2512. G
Apt, furn., 2-bdrm., cpts., dps., bltins, lge. pool, closed gar., near El Camino, adults, \$175. 213-329-5986. G
Cabins, Lake Gregory & Crestline, sleeps 6, \$25 w/ends; \$60 wk. 213-391-2040. G
Studio Apt, deluxe, Hawthorne, 3-bdrm., 2½ baths, family rm., close to Northrop, no pets, \$250 mo. 213-676-5425. G
Cabin, Big Bear Lake, \$30 w/end. 213-867-0662. G
Cabins, Idyllwild, 1 & 2 bdrm., stream, patio, f/place, \$25-\$35 w/end, \$50-\$80 wk. 213-868-8040. G

Rentals Wanted

Duplex or house, 2-bdrm., unfurn. w/gar., 2 adults, no pets, Aircraft Div. proximity desirable, \$110 mo. max., will maintain yard if avail. 213-756-3472. H
Apt, 1-bdrm., dps., cpts., stove, pets o.k., Torrance-Gardena area, \$120-\$130 mo. 213-324-2972. H

Child Care

Child Care offered, Hawthorne area, infants. 213-644-7578. I
Babysitter, experienced, Mon.-Fri., references. 213-677-7426. I
Child Care offered, hot breakfast & lunch, fenced yd., other children, close to Northrop. 213-772-3884. I

Personals

Male companion to share driving & expenses to Oklahoma City & return, leaving early Dec. 24. 213-371-9586. L

Rides and Riders

Rides Wanted

7:30 a.m. — 4:15 p.m.

Vicinity of Western & Lomita Blvd., Lomita. Occasionally. J. L. Micallef, Aircraft ext. 2063, 213-534-5350.

8 a.m. — 4:45 p.m.

Main St. & Imperial Hwy., El Segundo. Maggie Mackey, Aircraft ext. 4241, 213-322-0367.

Personals

We wish to thank our many friends for the wonderful party, gifts, & expressions of good wishes. MARY & ED LASKI. L

We would like to thank all of our friends at Northrop for the concern & generous help following our son's recent accident. BRUCE & CARRIE LIND. L

Deepest thanks to all our friends for their expressions of sympathy in the loss of my wife & our mother. FRANK T. BLAIR & FAMILY. L

Skiers share expense flights being organized to Mammoth, Lake Tahoe, Park City & Taos, lodging & ground transportation incl. 714-847-2648. L

We wish to extend our deepest thanks to all our Northrop friends for the flowers & kind expressions of sympathy in the loss of our beloved son & husband, Lionel Dashley. LIL- LIAN MANNING & IRENE DASHLEY.

Wish to board white warbler male canary with someone who raises canaries. 213-375-6114. L

For Sale or Trade

Motorcycle, 1964 Honda 90, set up for street or trail, \$125 or trade for mini bike. 213-371-4037. M

Corvette, 1967 427, many extras, \$3,200 or trade for Mustang, 1966 or '67. 213-363-3843. M

Cadillac, 1963 Coupe de Ville, full power, \$600 or trade for pickup or V.W. truck, van, or bus. 213-425-9954. M

Corvette, 1957 completely rebilt. eng., h/top convt., radio, \$1,200 or trade for motorcycle or VW in excellent cond. 213-679-0586.

Cadillac, 1964 sedan, lots of extras, \$1,375 or consider sports car in trade. 213-762-9813. M

Datsun, 1968, 4-dr., \$1,395 or trade equity for 1963 or 1964 Falcon or other compact car. 213-882-0761. M

Volkswagen, 1966 square back, \$1,450 or trade for '68 or '69 9-pass. V.W. bus. 213-934-5295. M

Dates Set for Corporate Reliability Seminar

A two-day Northrop Corporate Reliability Seminar will be held Oct. 15-16. First day activities will center at the Aircraft Division with second-day sessions at the Electro - Mechanical Division's Anaheim facility.

Richard E. Horner, senior vice president — Technical, will speak at the opening session. Wendell Harter, Aircraft Division, is the seminar chairman. D. A. McInnis, manager, Operations department, Electro-Mechanical Division, will speak at the second-day session.

Members

Northrop's Corporate Reliability Committee is currently chaired by David Kessler, Electro - Mechanical. Members are Mr. Harter, A. S. (Stan) Church, Corporate offices, Abe Osborn, Electronics, and John MacCarley, Northrop Ventura.

Liaison representatives include Joe Comiskey, Electronics — PPD, H. L. (Mike) Michael, Northrop PAGE, Bob Rawski, Hallicrafters, and Bob Score, Northrop Carolina.

Serving on the Corporate Parts Working Group Sub-Committee are Phil Sitzler, Aircraft,

Tom Thompson, Electro - Mechanical, Tom Jackson, Electronics, and Mr. MacCarley, Northrop Ventura.

Since 1962

The Corporate Reliability Committee was organized in 1962. It meets regularly to coordinate such reliability activities as technical information exchange, problem identification, and preparation of information for the Corporate Executive Council for its use in the evaluation of quality and reliability performance at Northrop facilities.

Among the most recent committee accomplishment was the establishment of a corporate-wide system for alerting Northrop elements on potential parts reliability problems. The group is currently studying corporate standards for parts and a corporate parts failure rate data bank.

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HAWTHORNE

NORTHROP NEWS

Vol. 27

No. 19

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NRC Calendar

For information on NRC activities call Personnel Services, ext. 244, or contact the commissioner. All meetings are held in the NRC Clubhouse, 1834 Valencia, Fullerton, unless otherwise noted.

ART — Every Wednesday at 7:30. Models on alternate weeks. Non-professionals welcome. Ed Mosher, ext. 1184.

BASKETBALL — Now organizing new industrial leagues. Duane Baptiste, ext. 402.

BIBLE — Mondays, Wednesdays, Fridays, Orangethorpe. Tuesdays and Thursdays, Page Court. Marvin Wiebe, ext. 646.

BRIDGE — New contract tournaments got under way Oct. 2. Jack Kirkeby, ext. 1207.

CAMERA — Meets on Tuesdays. Instruction available for those wanting to learn black and white processing. Harry Dent, ext. 607.

GEM AND MINERAL — Will participate Oct. 11 and 12 in Western area cleanup. Gaylord Miller, ext. 531.

GOLF — October tournament set for Jurupa Hills Country Club, Riverside, Saturday, Oct. 25. First tee, 9:30 a.m. Individual match play vs. par. George Baldwin, ext. 237.

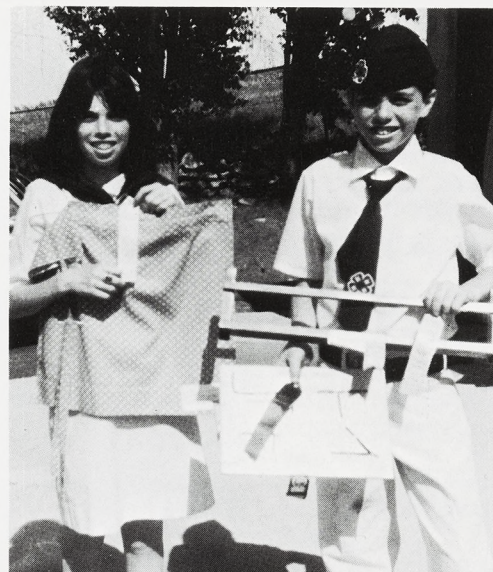
POCKET BILLIARDS — New tournament now under way. Big John's every Wednesday at 4 p.m. Earl Jackson, commissioner, ext. 1249.

TRAILER AND CAMPER — Fisherman's Retreat scheduled for Oct. 25 and 26. Al Fredette, ext. 318.

TRAVEL — Westward Ho! to Las Vegas, leaves Oct. 17. Randy Lee, ext. 244.

RADIO — Have new program. Day shift members are contacting second shift members during noon activity. Julian Bloom, ext. 431.

TABLE TENNIS — Daily at noon, cafeteria area. Bring your own paddle. Jack Flannagan, ext. 674.



DESPITE HANDICAPS THERE WERE PLENTY RIBBONS
Margaret Millsbaugh, left, with prize porker. Center, Annette and Andy, and, right, Lori with her prize-winning apron.

SOFTBALL WINNER

The Manufacturing Liaison softball team nosed out the Page Court Jesters to take first place in the summer softball league, according to John Burke, commissioner.

The winners won 14 games and lost one while the Jesters had 12 wins and three losses.

SOAPY PIGS, MASHED CAKES

Trouble Can't Stop 4-H Clubbers

Well — despite mamma dropping her purse on the cupcakes, the soapy pigs getting away, and a tight budget, the Millsbaugh children garnered more than their share of ribbons at the recent Orange County Fair.

Margaret, 14, Annette, 12, Andy, 11, and Lori, 9, children of A. U. Millsbaugh, Electro-Mechanical Division, entered in the fair projects they made as members of the Canyon Bobcats 4-H Club of Santa Ana Canyon.

Margaret took a first and second place in the Home Furnishings division, two firsts, a second and third in electricity, and despite a near tragedy, a second in the food preparation. Mrs. Millsbaugh accidentally dropped her purse on Margaret's cupcakes, but a hasty patch job on the frosting left them still good enough to take a red ribbon.

Both Margaret and her brother, Andy, entered the swine raising competition, also. This brought on another near disaster when the soapy pigs escaped from the washroom and had to be pursued across the fair grounds. The pigs had previously won ribbons in the 4-H Club Fair. Andy also took a second and third place in woodworking, and three firsts and a third in electricity.

Annette and Lori won two ribbons each for making clothing, in the sewing division.

The children were strictly on their own, supplying their own labor and financing. When baby-

sitting, yard mowing and the like failed to produce sufficient revenue for expenses, they had to float loans. Sale of the pigs for \$70 each after the fair wiped out the deficit and produced a profit to put next year's projects on a

firm financial ground.

Now if they can get mamma to be more careful where she drops her purse and if they can learn to hang on to soapy pigs, the Millsbaughs are looking forward to next year.



LEARNING AN EXPERT'S TRICKS

When the Trailer Camper Club decided to go fishing they went to an expert, Art Bowser, commissioner, NRC Fishing Club, for tips. He advises Vern Woodsmall, center, and Al Fredette, Trailer Camper commissioner, to use a big hook and be prepared for anything from a minnow to a whale.

CAMPERS WILL SWAP HIGHWAYS FOR FISHERMEN'S RETREAT ON NEXT TRIP

The Electro - Mechanical Division Trailer and Camper Club is swapping its maps, wrenches and tire pumps for fishing tackle with a Fisherman's Retreat outing planned for the weekend of Oct. 25 and 26, according to Al Fredette, commissioner, NRC Trailer and Camper Club.

"The retreat has 15 acres of fresh water lakes with blue gill in large quantities, as well as crappie and catfish," Mr. Fredette said. "No fishing license is necessary and you can fish all night if you wish. Catch of trout

is limited to five per adult and catfish is limited to ten."

There is a group camping rate of \$3 per night with water and electrical hookups for campers, centrally located showers and restroom and picnic tables set in an area with plenty of shade and grass. Fishing is \$2.50 per person extra, but children under eight are free.

Reservations must be made with Al Fredette, ext. 318, or Fran Randel, ext. 220 no later than Oct. 17.

SCOUTING HITS 15 YEAR MARK HERE

The Electro - Mechanical Division is completing 15 years of sponsorship of Boy Scout Troop 70, according to Jaime Lopez, Boy Scout commissioner for NRC.

Northrop participation in scouting actually began with a division sponsored Cub Scout Pack. As the boys graduated to the Boy Scout levels, sponsorship was extended to the two groups. Still later an Explorer group was added to the sponsorship and all three are currently active.

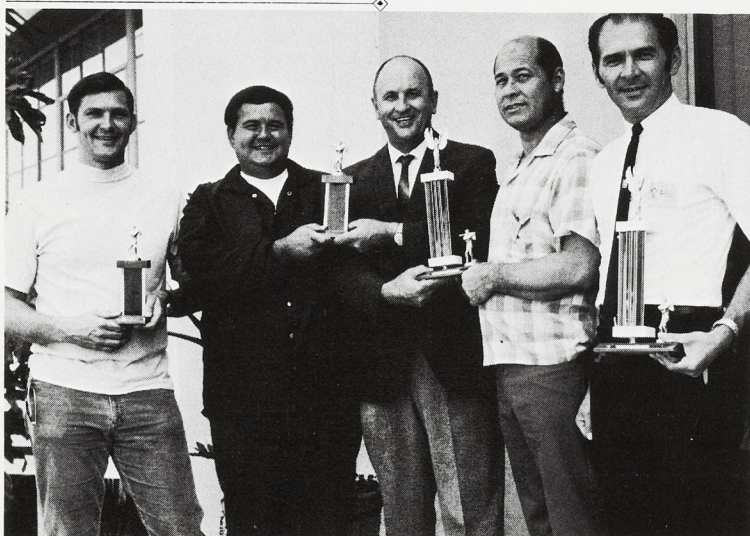
Mr. Lopez who is also Northrop's institutional representative to the scouts, said that memberships are wide open in

all three groups.

"There is no better activity for young people," he said. "Also there is an added advantage for young people in the Northrop-sponsored groups. Our various NRC clubs cooperate with us fully in helping the boys get their merit badges."

During the 18 years of Northrop sponsorship, about 300 boys have participated in the three groups.

Boys from the Anaheim district are eligible for membership in the Northrop-sponsored companies. Interested parents are urged to contact Mr. Lopez at ext. 244 for information.



THEY SHONE ON THE DIAMOND

Garry Smith, D. C. Smith, of the Jesters, left, Jaime Lopez and Jim Melatti, right, receive trophies from John Burke.

Junior Achiever Advisors Picked for '69-'70 Year

The Electro-Mechanical Division will counsel two Junior Achiever companies for the 1969-70 school season.

The Junior Achiever program is a nationwide effort through which companies assist young people to understand and appreciate the American free enterprise system. During the school year, participating students organize companies, manufacture and sell products which are financed through the sale of stock.

The Electro-Mechanical Division has counseled a company each season for the last 11 years. This year the response of Northrop personnel desiring to help was so great that the division decided to counsel a second company. One company will be counseled through each of the two Orange County Junior Achiever Centers.

Advisors for the North Orange Center company are: Management — Lou Albertson, Sales — Earl Chambers, Production — Tom Maxwell, and Finance — Jim Hock.

The South Orange Center company advisors are: Management — Fred Eckstein, Sales — Herb Felix, Production — Bill Gale, and Finance — John Turner.

Bob Varner, who has been a junior achiever advisor for four years will serve both groups as an alternate.

The advisors attended the Oct.

2 "kickoff" dinner at the Hollywood Palladium. The next steps will be organization of the companies, selection of corporate names, deciding on a product to manufacture, and the sale of stock to finance the operation.

AIRPORT

(Continued from page 1)

at airport operations and its contributions to the community.

Displays will range from antique aircraft such as the Fokker tri-motor and a Curtiss pusher to late model helicopters and STOL (short takeoff and landing) aircraft. There also will be racing aircraft recently returned from the National Air Races at Reno.

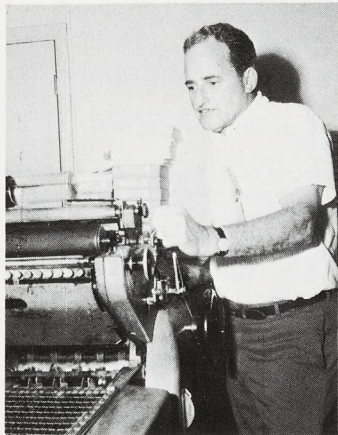
A special feature will be 15-minute air rides at a nominal charge in planes of Golden West Airlines, Aviation Unlimited (a flying club), and the Orange County Air Museum.

Bus tours also have been arranged to take spectators about the airport. Each bus will have a pilot aboard who will explain airport operations.

The airport will not be closed to traffic and visitors will see actual operations and landings in progress in addition to the many displays.

Free parking is provided and regular bus service will shuttle between the parking areas and the exhibits.

On The Job



CHET STAFFORD, multilith offset printer, **Reproduction**, adjusts his machine before printing a contract proposal. Mr. Stafford has been with the Electro - Mechanical Division for eight years. In addition to operating the press, he also doubles on the process camera, makes blueines and other work of the Reproduction section.

Advances Made in High Speed Data Acquisition Units

NORTHROP NEWS

ELECTRO-MECHANICAL DIVISION

Northrop Corporation, Beverly Hills, California

Vol. 27, No. 20

October 22, 1969

Desert Rats Seeking Lost Indian Relics

The Electro-Mechanical Division Desert Rats Club is seeking remains of lost Indian tribes which once camped on the shores of an in-land sea where the Anza Borrego Desert now is located.

The club is planning an overnight trip to the area on Nov. 9 and 10, according to Fred Barber, Desert Rats Club commissioner.

They plan to camp near Ocotillo Wells while they hunt for arrowheads and potsherds left by the lost tribes. Potsherds are fragments and remains of Indian pottery. The artifacts were left by the Indians who came to the in-land sea during the winter and then went back to the mountains for the hot summer months. The sea later dried up after its connection with the Gulf of California was severed by sand from the Colorado River.

The Indian artifact trip, the club's first jaunt of the winter season, is one of a scheduled series which the Desert Rats make to historic western sites. Those interested in joining in a genuine western hobby are urged to contact Mr. Barber at ext. 1194.

TOP SHOOTERS

Chet Niles and Vern Rand were the top winners in the September matches of the Electro-Mechanical Division Gun Club at Silverado Sportsman's Range, according to Charles Fox, club commissioner.

Mr. Niles was first in the Hi-power Schutzen match — standing, 100-200 yards, and also took first in the Hi-power Luck and Small Bore Luck Match where the shooting was at a numbered target.

Vern Rand took first place in the Small Bore Schutzen match at 50-100 yards and also was first in the pistol regular match.

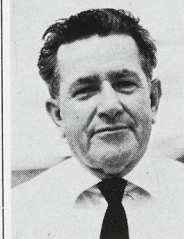
Mike Szidik took first in the instinctive shooting where pistols were fired without sights.



AUTOMATION ENGINEERS AT WORK
H. H. Simeroth (left) and Stanley Oster work on DAU.

Walt Cosgrove's 25 Years Leads This Month's Service Pin Awards

Walter Cosgrove, Boeing 747 assembly, has completed a quarter century with Northrop. He began work with the company in 1941, left in 1942 and returned in 1944 for continuous service since that time.



Mr. Cosgrove

Actually his work began earlier. In 1935 and 1936 he worked with John Northrop in the Douglas subsidiary before the Northrop Corporation was formed.

Since that time he has worked on all Northrop aircraft. He recently transferred from the Aircraft Division when additional assembly work for the Boeing 747 jetliner was added to the Electro-Mechanical Division's responsibilities.

In addition to Mr. Cosgrove, 12 other employees have become eligible for service pins. Those who have 15 years with Northrop are Theodore S. Stec, Receiving and Fabrication Inspection; Dawn O. Noice, Machine Shop; L. B. Lambeth, Assembly Control; Orphis Christian, Fabrication Control; John Bartos, Palos Verdes; Carlson H. Mengert, Engineering Cost Control; and Mary Vas-

seur.

Those completing 10 years are Michael F. Verba, Sheet Metal and Weld; Hazel Hogan and Deloris Parcell, Electronics Assembly.

Five year veterans are Ralph Bates and Richard Tooley, Palos Verdes.

In addition 57 others received three year service pins.

NASA Traveling Space Exhibit to Show Models, Photographs of Apollo Flights

The Northrop Electro-Mechanical Division will host the National Aeronautics and Space Administration's traveling space exhibit Nov. 20 and 21 at its Anaheim location.

The exhibit is expected to coincide with the second manned landing on the moon which is scheduled for Nov. 19. The exhibit van, called the "Craftsman Ship," is equipped with a variety of space-age illustrations and materials. Viewers will see pictures of the American astronaut team and a spacesuit of the type worn by the astronauts. A taped message by Astronaut Frank Borman calls attention to the importance of quality work on Apollo.

The traveling exhibit is part of a nationwide effort to encourage quality workmanship in production of the nation's space vehicles. The Electro-Mechanical Division was privileged to receive the van because Northrop

MANAGEMENT CLUB SETS DINNER DANCE

The combined Electronics — Electro - Mechanical Division Management Club's annual dinner dance will be held Nov. 8 at the Biltmore Bowl, according to Robert Abel, club vice president.

Entertainment for the annual affair will be announced later. Members are urged to return reservation requests as soon as possible.

This will be the last of the combined social functions of the club. Beginning in February, the two divisions will split into separate clubs.

Development Reduces Costs, Sizes, Increases Reliability

Recent advances in integrated circuit technology have permitted engineers at Electro-Mechanical Division to advance the development of high speed data acquisition units (DAU) for application in Test Evaluation and Monitoring System (TEAMS) on future Navy programs.

The new application has brought about significant reductions in cost and size while increasing reliability of the units.

Applied by H. H. Simeroth and Stanley Oster, Automation Systems engineers, the new integrated circuit technology will apply to TEAMS units for monitoring many new shipboard systems such as sonar, communications, navigation and propulsion systems.

These systems place additional requirements on data acquisition speed, size and reliability. The high speed data acquisition unit was designed to meet this requirement.

The DAU serves as a link in a chain that couples, for example, a radar system, which is being monitored, to the control display which computes and displays the radar's performance.

Development of this DAU by Mr. Simeroth and Mr. Oster entailed extensive use of the latest in integrated circuit technology. By using the Metal Oxide Semiconductor Field Effect Transistor (MOSFET), they eliminated the mechanical relays previously used in data acquisition units of this type. Large scale integration (LSI) in integrated circuits supplies many circuit functions which previously required discrete component circuits.

The use of these techniques offers many advantages over pre-

vious designs. Reduction in size is a major result. The use of MOSFET switches allows 32 switches and their selection logic (See DAU, page 6)



Bill Hantula

Bill Hantula to Set Time Clocks for Upcoming Change

It is up to Bill Hantula to see that the Electro-Mechanical Division is on time at work next Monday morning.

Bill, timekeeper leadman for the night shift at Anaheim, is responsible for resetting the time clocks to reflect the change caused by the end of Daylight Saving Time.

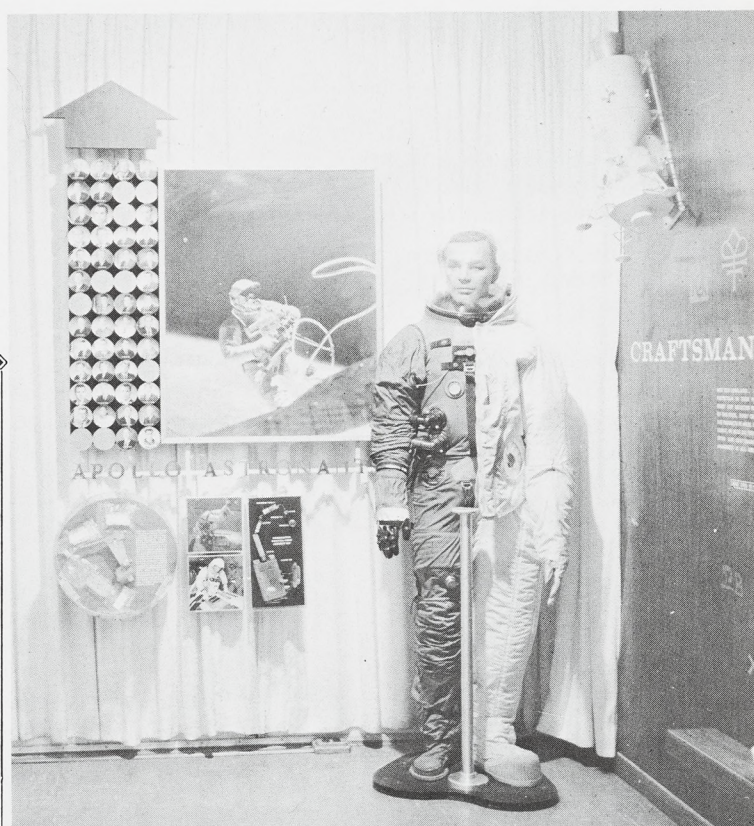
There are 23 time clocks in the different buildings, but they are controlled by six master clocks. The master clocks will be run back one hour to change from daylight to standard time, signalling the end of summer.

Bill usually does this after the second shift leaves work at 12:15 a.m. on Sunday morning. He has been with Northrop for 16 years and has been resetting the time clocks for six. In this time he has never forgotten to change the company clocks, but once he failed to change his own at home. As a result he found himself at church an hour ahead of everyone else.

Prize Winner in PV Art Show



ED MOSHER, commissioner, NRC Art Club, won first place ribbon in the Northrop exhibit at the recent Palos Verdes Art Association's Art for Fun(d)'s Sake show held at the Northrop Palos Verdes facility. Mr. Mosher's winning abstraction was titled 'Oriental Garden.'



NASA'S CRAFTSMAN SHIP

Models and photographs are featured in space exhibit.

AID-NORAIID Signups at Hand

Once each year Northrop Corporation personnel are given an opportunity to authorize weekly payroll deductions to support charitable, health and welfare organizations for the coming year.

That time is at hand again.

November 3-7 are the dates for Northrop employees' 15th annual AID-NORAIID signup.

Taking part will be employees in the Corporate office, Northrop Corporate Laboratories, Aircraft, Electronics and Electro-Mechanical Divisions, including the latter's Huntsville, Ala. facility.

Ventura Division conducts its own in-plant charity campaign

at a different date.

This year solicitations will concentrate on those employees who are not currently taking part in AID-NORAIID activities.

In addition, those employees who have designated their AID contributions to specific charitable organizations will be asked to redesignate, if they wish. Regulations governing such contributions state the donor must redesignate each year. This designation option is a unique feature of AID affiliation.

For those who simply give a set amount goes the knowledge he or she is supporting all health, welfare and charitable organizations covered by AID-

UNITED GIVERS, plus NOR-AID, Northrop's own internal charitable organization.

Lloyd Balsam of Electronics, serves as chairman of the NOR-AID board of directors which includes representatives of all participating Northrop divisions.

Signup coordination this year falls to Sandy Tapper of the Corporate office; Deane Haddon of NCL; Marie Tully of Aircraft Division; Harry Clark of Electronics; Harry Belcher of Electro-Mechanical; and Charles White of Huntsville. Additional information will be provided later. Department clerks and secretaries will continue to provide necessary forms and assistance as needed.

It's Time Again



JOYCE HATFIELD, Electro-Mechanical Division, reminds us that Daylight Saving Time ends Sunday at 2 a.m. The secret of being on time for work Monday morning is to run the clock back one hour.

AUDITORS SEEK CREDIT UNION VERIFICATIONS

Northrop Credit Union statements of account for the period ending Sept. 30, 1969, were distributed recently. Accompanying them were auditor's account verification requests.

Employees who did not receive the latter are asked to notify the independent auditor, John B. Knight and Company, Certified Public Accountants, 2926 Santa Monica Blvd., Santa Monica, Ca., 90404. When writing include your name, address and Credit Union account number.

Routine Credit Union business continues to be handled by the main office.

Northrop Employees' Savings Plans 1969 Annual Report

The eighth Annual Report of the Northrop Employees' Savings Plans is presented below. Publication in the Northrop News makes the report available to all employees, Alan C. Morgan, chairman of the Northrop Savings Plans Administrative Committee, pointed out. In the past the report has been distributed only to participants in the Savings Plans.

The report covers the cash transactions made during the fiscal year ended July 31, 1969 and during the period since inception of the Salaried Plan (Feb. 1, 1962) and the Hourly Plan (Feb. 1, 1966). It also shows the condition of the Trust at the close of business on July 31, 1969, the values of the respective funds, the investments held as of that date, and the unit values which have prevailed since the Plans were started.

It was pointed out that the value of a Participant's Savings Account depends on the prevailing market values on the valuation date and does not reflect market changes since July 31.

Summary of Transactions through July 31, 1969

Moneys Received

	During Fiscal 1969	Since Inception
From Participants		
Salaried	\$ 6,205,548	\$29,515,183
Hourly	1,458,055	4,370,409
Total	\$ 7,663,603	\$33,885,592
From Northrop (50% of Participant deposits less forfeitures)	3,128,407	14,372,150
Total Contributions	\$10,792,010	\$48,257,742
From Sale of Bonds	2,866,000	15,033,037
From Sale of Stocks	7,602,661	10,839,166
From Interest on Bonds	586,471	1,815,624
From Dividends on Stocks	341,244	1,027,054
From Dividends on Northrop Stock	387,892	1,439,132
Total Amount Received	\$22,576,278	\$78,411,755

Moneys Paid Out

For Purchase of Bonds (including accrued interest paid)	\$ 4,007,596	\$27,251,784
For Purchase of Stocks	11,953,124	24,854,800
For Purchase of Northrop Stock		
(67,000 shares during fiscal year 1969;		
500,558 shares since inception)	3,166,731	15,286,515
To Participants on Withdrawal (in addition to		
22,505 shares of Northrop Stock during fiscal		
year 1969; 86,296 shares since inception)	3,336,436	10,695,096
Total Cash Amount Paid Out	\$22,463,887	\$78,088,195
Balance	\$ 112,391	\$ 323,560
Cash on Hand—Beginning of Period	211,169	—
Cash on Hand July 31, 1969	\$ 323,560	\$ 323,560

Summary of the Condition of the Trust at Close of Business July 31, 1969

Cash on Hand

For Purchase of Bonds	\$ 5,292
For Purchase of Stocks	88,340
For Purchase of Northrop Stock	229,928
Total Cash on Hand	\$ 323,560
Interest Accrued on Bonds	195,985
Dividends declared but not received on Stocks	24,776
Market Value of Investments	
Purchased with Participants Contributions:	
Bonds (Cost \$12,330,383)	10,263,948
Stocks (Cost \$14,485,328)	16,257,973
Purchased with Northrop Contributions:	
Northrop Stock (Cost \$13,062,455)	14,499,170
Total Value of Trust on July 31, 1969	\$41,565,412

The Value of the Trust is divided as follows:

Participant Savings Accounts:	
Bond Fund	\$10,465,226
Stock Fund	16,371,088
Participant Profit Account (Northrop Stock)	14,729,098
	\$41,565,412

INVESTMENTS AS OF JULY 31, 1969

BOND FUND	Face Amount	Cost	Market
Public Utility	\$ 3,346,000	\$ 3,382,394	\$ 2,655,289
Industrial	3,490,000	3,498,569	2,680,550
U.S.A. Government	1,119,000	1,110,406	1,080,694
Bank Finance	1,146,000	1,142,144	849,455
Federal Agencies	2,220,000	2,220,000	2,138,265
Finance	300,000	298,620	294,375
Foreign	381,000	374,250	261,320
Commercial Paper	304,000	304,000	304,000
	\$12,306,000	\$12,330,383	\$10,263,948

STOCK FUND	Shares	Cost	Market
American Airlines, Inc.	com 4,500	\$ 185,829	\$ 109,688
American Express Co.	com 3,000	174,960	187,500
American Express Co.	pdf 2,000	139,000	125,500
American Home Products Corp.	cap 3,400	121,821	192,950
American Hospital Supply Corp.	com 12,700	186,783	439,737

STOCK FUND

	Shares	Cost	Market
Anheuser-Busch, Inc.	com 7,300	\$ 191,050	\$ 438,000
Atlantic Richfield	com 5,000	211,673	523,750
Avon Products	cap 2,500	220,982	386,250
Beckman Instruments, Inc.	com 3,000	160,554	135,000
Becton Dickinson & Co.	com 8,250	177,300	387,750
Black & Decker Mfg. Co.	com 6,500	279,019	403,000
Boeing Co.	cap 3,000	219,038	102,750
Boise Cascade Corp.	com 5,080	217,001	300,990
Bristol-Myers & Co.	com 2,200	105,586	126,500
Burroughs Corp.	com 1,500	195,217	200,813
Carolina Power & Light Co.	com 3,000	133,016	100,875
Chrysler Corp.	com 2,350	90,591	87,537
Citizens & Southern National Bank of Ga.	cap 5,002	198,386	272,609
Combined Insurance Co. of America	com 6,500	322,875	370,500
Connecticut General Life Insurance Co.	cap 1,500	73,103	81,000
Continental Corp.	cap 4,800	152,010	189,600
Deere & Co.	com 5,000	280,365	190,625
E. I. DuPont de Nemours Co.	com 2,500	399,836	311,875
Eastman Kodak Co.	com 6,040	349,759	443,940
Federated Department Stores, Inc.	com 6,000	206,427	206,250
Ford Motor Co.	com 4,500	236,355	194,063
Ford Motor Credit Co.	Com Paper	734,000	734,000
General Electric Co.	cap 5,000	459,004	430,625
General Motors Corp.	com 5,000	385,719	361,875
Gulf Oil Corp.	com 3,800	108,837	130,150
Harcourt, Brace & World, Inc.	com 2,500	226,075	146,250
Harris-Intertype Corp.	com 6,100	379,822	412,512
Hercules, Inc.	com 6,000	240,547	216,750
Illinois Power Co.	com 2,100	80,611	72,450
International Business Machines Corp.	cap 2,206	324,430	715,847
International Tel. & Tel. Corp.	com 13,000	685,913	625,625
Johnson & Johnson Co.	com 4,000	223,608	470,000
McGraw Hill, Inc.	com 6,000	166,524	177,000
Middle South Utilities, Inc.	com 2,600	65,416	55,250
Mobil Oil Corp.	cap 4,000	167,989	218,000
Moore Corp. Ltd.	com 10,700	191,675	296,925
Owens Illinois, Inc.	com 7,000	520,494	441,000
Perkin-Elmer Corp.	com 4,000	181,052	183,000
Pfizer, Chas. & Co., Inc.	com 6,000	456,007	467,250
Polaroid Corp.	com 1,446	146,890	169,182
Prentice Hall, Inc.	com 7,042	146,664	279,919
Reynolds Metals Co.	com 3,200	159,303	101,200
Sanders Association, Inc.	com 10,000	464,241	265,000
Schlumberger, Ltd.	cap 7,500	279,752	629,063
Southern Co.	com 5,000	137,963	133,750
Sunbeam Corp.	com 4,200	214,280	147,000
Teledyne, Inc.	com 6,284	348,246	197,946
Texaco, Inc.	cap 2,235	156,301	146,393
T.R.W., Inc.	com 11,500	359,767	379,500
Union Oil Co. of California	com 5,000	282,408	250,000
U.S. Plywood Champion Paper, Inc.	com 9,000	223,171	255,375
University Computing Corp.	com 1,300	162,700	71,500
Warner-Lambert Pharm. Co.	com 3,712	96,669	210,656
Whittaker Corp.	com 10,240	367,089	220,160
Whittaker Corp. Warrants	824	—	5,768
Will Ross, Inc.	com 3,000	113,625	132,000
		\$14,485,328	\$16,257,973

PROFIT FUND

	Shares	Cost	Market
Northrop Corporation	414,262	\$13,062,455	\$14,499,170

HISTORY OF UNIT VALUES

Valuation Date	Bond Fund	Stock Fund	Profit Fund
7/31/62	\$ 1.00678	\$.82673	\$.84299
7/31/63	1.07228	1.03982	.74533
7/31/64	1.12346	1.25478	.64951
7/31/65	1.18096	1.31530	1.05750
7/31/66	1.12924	1.38824	.97052
7/31/67	1.17227	1.78819	1.78347
10/31/67	1.13561	1.79131	1.41919
1/31/68	1.14115	1.78562	1.50612
4/30/68	1.13534	1.97636	1.56073
7/31/68	1.17991	1.98598	1.62488
10/31/68	1.18527	2.11041	1.97807
1/31/69	1.16736	2.15130	2.25938
4/30/69	1.16661	2.17413	1.96409
7/31/69	1.14589	1.94687	1.48373

The complete annual report of the Trustee is available for inspection during regular first shift hours in the Industrial Relations office serving your facility.

Polaris Support Depot Cuts Repair Time for MTRE

The Electro-Mechanical Division's Polaris Support Depot keeps Northrop's Missile Test and Readiness Equipment (MTRE) working for the U.S. Navy.

The depot was established as a self-contained organization Feb. 12, 1962 to repair Polaris MTRE equipment returned from the customer, manufacture modification kits and manufacture spare parts and assemblies for "out of production" models of Northrop-produced Polaris Test Equipment, according to Bob Varner, depot general foreman.

The depot is under the Manufacturing section, Charles Hargrove, manager, and is assigned to M.A. Seeley, manager, Electronics and Production Support group.

The depot is organized into the following direct line units: Planning and Controls, Herb Felix, supervisor, and Repair and Modification, Bob Selvidge, foreman. The Logistics, Material and Quality Assurance organizations also have representatives as-

signed to the depot.

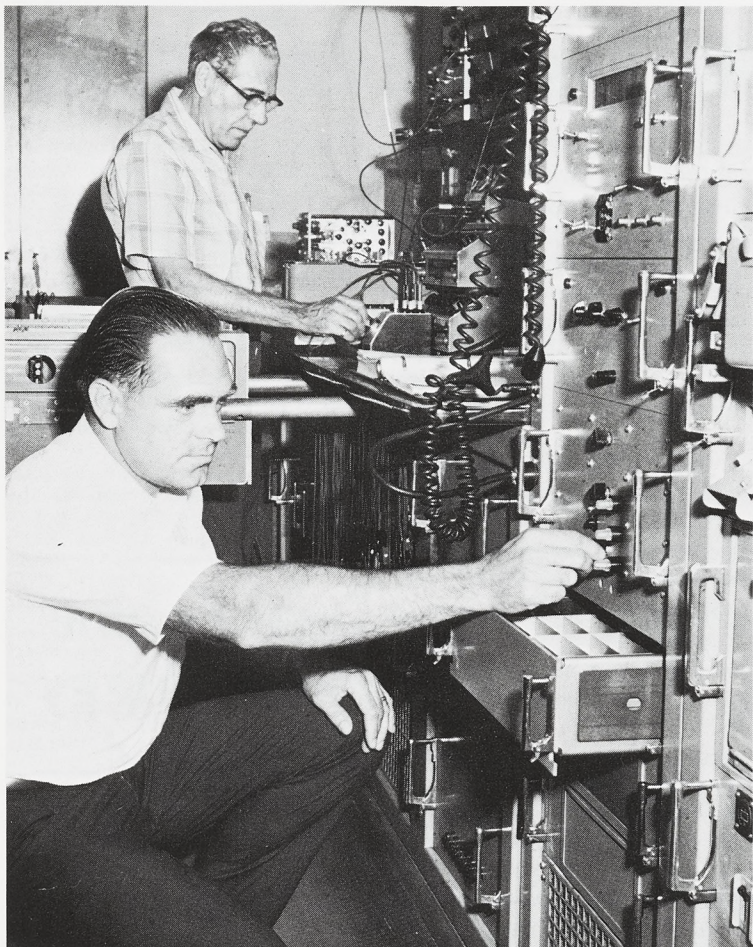
The main objectives of the Polaris Support Depot were to reduce turnaround time and to cut repair and handling costs. These objectives were attained through this streamlined organization and shortened lines of communication.

The original repair orders required 17 initiating, concurring, and/or approving signatures before work could be completed. This was reduced to five. The turnaround time was cut from 27 weeks average prior to 1962 to

37 days average for in-plant repairs and 83 days average for vendor repairs, during 1969.

This reduced turnaround time on repairs has reduced the quantity of spares required for satisfactory operation. Updating equipment during repair and refurbishment has provided improved system performance.

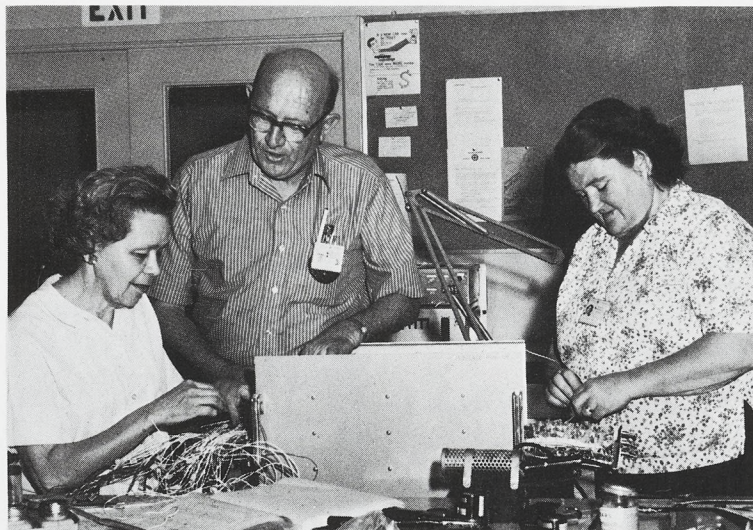
The depot is currently responsible for handling and accountability for all customer-owned materials returned to the Division under 20 different annual contracts and approximately 100 active open sales orders.



TESTING DIGITAL MULTIMETER
Ed Balch, technician, and Frank Stetter, inspector.



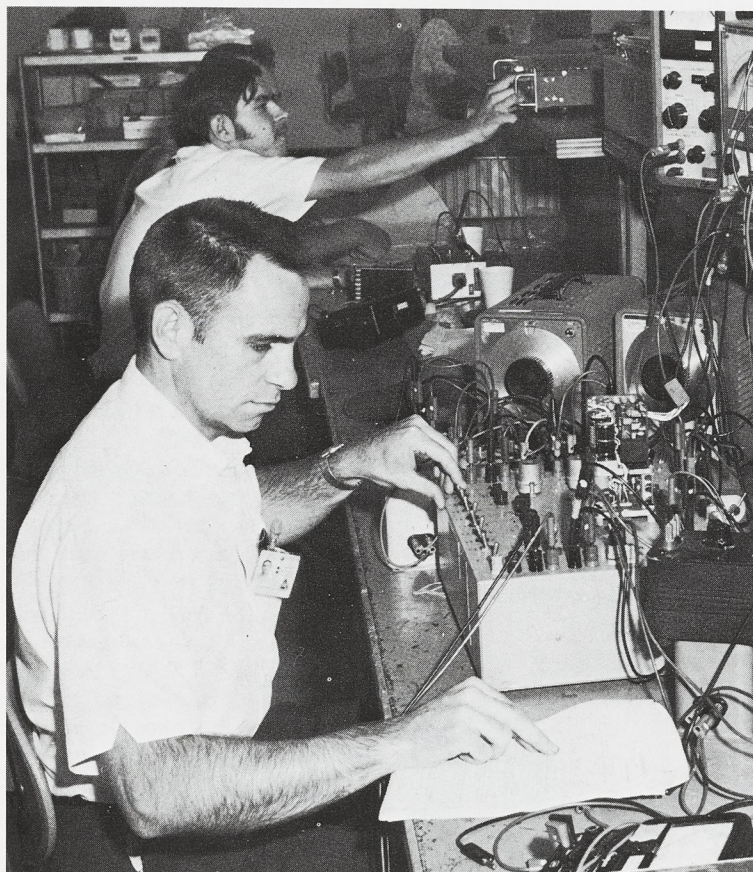
MECHANICS IN THE ASSEMBLY ROOM
Highly skilled mechanics handle the complicated electronics assembly for the Polaris Support Depot.



WIRING MODIFICATION
Virginia Preston, Rena Larouche with inspector Frank Dibble.



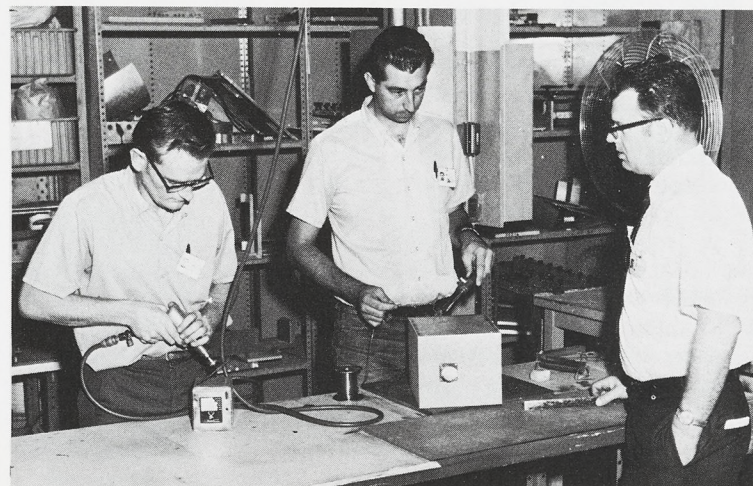
PAINT ROOM ACTIVITY
Doug Hansen completes job, Jim Henderson brings another.



CAREFUL CHECKOUT
Technician Richard E. Massey checks static gain converter. In background is Steve Semonza.



BUSY PLACE
Above, John J. Turner, left, and Dave Davis prepare items for shipping. Right above, Gloria Burrola and Cecil Allen in the bond room. Right, Bob Kennedy and G. A. Tyte, Jr., seal power supply cases with Vic Crawford, foreman.



**PHOTOS BY
RON GRISHABER**

Northrop Pioneer Bob Catlin—His Mark Is On Every Plane

Thirty years of loyal employment with Northrop have been rewarding, fun, and a lot of hard work.

That's the way Bob Catlin describes his 30 years. He is only the second man in the company to garner the coveted three-decade award. He joined Northrop Oct. 2, 1939.

Robert Stanley (Bob) Catlin was born 61 years ago in Los Angeles and has lived in the San Fernando Valley virtually all his life. "I moved to Burbank with my parents when I was one," he told the Northrop News.

His father, a Wells Fargo railroad guard for 20 years, was later Burbank police chief for eight years. Young Bob graduated from Glendale High and a year later he was married. He lives with his wife of 42 years, Arline, in the Toluca Lake area of North Hollywood.

Although his relationship with the modern Northrop Corporation began in 1939, he first went to work for John K. Northrop as a sheet metal apprentice when the predecessor company was six months old in 1929.

Headquartered in Burbank 40 years ago, the United Aircraft-affiliated firm produced Alpha and Beta series planes, the first all-metal monocoque planes in the U.S. In 1931, though, that early company closed its doors.

In 1932 Mr. Northrop established plans for a Northrop El Segundo Division of Douglas Aviation. After six months with Lockheed, Mr. Catlin was the first "new" Northrop employee.

"I was a watchman on weekends and during the week reorganized the old El Segundo plant for aircraft production," he recalled.

The firm produced the Gamma series of airplanes in 1937. Mr. Catlin was assistant superintendent of production and experimental work in 1935. In 1937 he believes he was the youngest superintendent in the airframe industry.

Working alongside Mr. Catlin were recently retired Tom Quayle, the first man to receive a Northrop 30-year pin, retired Richard (Dick) Nolan, and Engineer Paul Bonham.

Payroll grew from 41 people to some 4,000 to 5,000 as the firm produced the Douglas DB-7 and later the A-20 twin engine attack bomber. "We set up the first progressive aircraft production line on the West Coast," Mr. Catlin recounts.

When Northrop was formed in 1939 the company decided to restrict itself strictly to research and development of airplanes. "We'd let other people build 'em," Mr. Catlin said. So in 1939 the team moved to headquarters in

the Hawthorne Hotel where Mr. Catlin worked on a mockup of the Flying Wing (N1-M) with Mr. Northrop's home woodworking equipment.

They planned a small plant on the site of the Aircraft Division's Plant One. "Dick Nolan bought the equipment and I planned the plant layout," Mr. Catlin remembers.

First Wing

They built the first small Flying Wing there in 1940. Where the Northrop Corporate Laboratories, Engineering and Aircraft Division's Plant Three buildings now stand were "a slough, quagmire or asparagus patches."

When World War II broke out in 1941 the R & D company "completely changed its plans. We had to do everything—design the planes, test them and build them."

First major product in the new company was the N3-PB seaplane built for Norway in 1940. The next two years were devoted to

development of the Flying Wing and the P-61 Black Widow.

Facilities grew at a very rapid clip and so did the manpower level. "A lot of midnight oil" went into P-61 development as redesign was done on a "crash basis." The first Black Widow flew in 1942.

Subsequent war work saw Northrop produce, with Mr. Catlin as plant three manager, various versions of the Flying Wing, the F-15 (a streamlined P-61) in 1945, and the big Flying Wing which made its maiden flight from Hawthorne Field in 1946.

"My biggest thrill in 40 years of aircraft work was watching that plane take off," Mr. Catlin said. It had a wingspan of 178 feet.

Later in 1946 Mr. Northrop asked Mr. Catlin to take over responsibilities for Inspection "to iron out some problems." Three years later, near its peak of 1,400 employees, the department took the name Quality Control.

Bob Catlin was named manager and held the post 20 years. Earlier this year he was named manager of Management Development at the Aircraft Division, reporting to Jack Mannion, vice president, Administration, a man who 25 years ago worked for Mr. Catlin.

He describes his new job as "a program to develop the highest qualified personnel for management." It is analogous to Quality Control "because in both cases we're dealing with specifications and with getting the product, in this case men, to meet them."

He has toyed with the idea of retirement, "but I've changed my mind with this new challenge."

On his desk was an inscribed silver tray lauding 20 years of

service to the Quality Control Committee of the AIA, of which he was a founding member. He received the award last week as a guest of honor at a dinner in Williamsburg, Va.

The company has changed in 30 years, Mr. Catlin noted. The major difference is that "it is much more aggressive and diversified. We're thinking entirely differently of things."

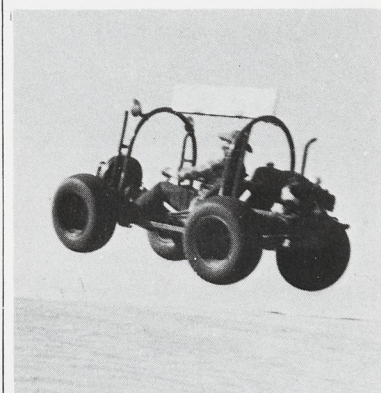
But Bob Catlin is still in the thick of things.

Dual Engine Dune Buggy Is 'Buggy'

Coming or going, Dave Paramore's "Push Me-Pull Me" dune buggy is really out of sight — no matter how you look at it.

The unusual dune buggy, which you can't tell one end from the other, is powered by two bugs—compact engines, that is—one at each end for more power.

Mr. Paramore built the buggy, along with his partner, at A and D Buggies in Torrance, a haven for dune buggy enthusiasts in the South Bay area.



'Push Me — Pull Me'

"When I first came up with the idea for 'Push Me-Pull Me,' my partner thought it would never work. But we went ahead with the idea and 10 days later the buggy was finished."

The most interesting aspect of "Push Me-Pull Me" is the way it has to be driven.

A single pedal is used for the operation of both clutches, as is the throttle control for both engines. However, the transmissions are shifted with two separate levers.

"This allows us to have each engine at a different speed for better maneuvering ability," Mr. Paramore said. The buggy has turned its own length at 40 miles per hour, and has hit a top speed in excess of 85 mph.

Another unusual aspect of the buggy is the steering wheel. It doesn't have one. The buggy is steered by two levers that control a split braking system.

"We steer solely by applying the brakes in the direction we want to travel," Mr. Paramore explained. "This way we can just about turn the buggy around in its own tracks."

Earlier this year, "Push Me-Pull Me" won a first place award at the Ninth Annual International Car, Motorcycle and Dune Buggy Show at the Sports Arena.

Naturally, the award was for ingenuity.



R. S. 'BOB' CATLIN MARKS 30 YEARS
Mr. Catlin shows luncheon gift to Jack Mannion.

WE ASKED THEM—How Much Should Television Shows Be Censored?



Mrs. Cable

Sherry Cable, secretary, Ventura:

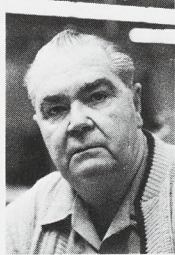
There are so many aspects to this question. The morals and ethics should be the individual responsibility of each person. If a person feels distaste at seeing certain programs he can turn them off—he is his own best censor.



Mr. Bennett

Dave Bennett, MQM assembler, Ventura:

Censored to the point where children are considered. For example, children's programs should be shown in the early evening hours and shows for adults could be aired later.



Mr. Petrich

Walt Petrich, inspector, Electro-Mechanical:

Yes, I'd say TV shows should be censored because of the effect they have on young people. A lot of these wild episodes really turn the kids on and they try to act like the people they see on TV.



Miss Nelson

Sue Nelson, laboratory assistant, Electronics:

Violence and sex should be censored to a minimum—especially in the early night shows—because younger children are watching TV at that time. Late shows could then be geared to a more adult audience.



Mr. Ice

John Ice, manufacturing engineer, Electronics:

Programs should be rated, within limitations, like they are in the movie houses. Then it would be up to parents to decide what television programs they and their children should watch.



Mrs. Pierce



Mr. Kongable

Ross Kongable, supervisor, Aircraft:

I think TV should be censored by viewer response rather than by networks prior to broadcast. That way people's reactions would kill a bad show.

Emily Ramirez, secretary, Aircraft:

I feel TV to some extent should be censored. However, if you don't like what's on TV, you can change the channel.



Miss Ramirez

Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

- Station Wagon, 1967 Ford Fairlane, a/c, auto., dual tailgate, \$2,200. 714-837-6067. A
- Buick, 1968 Skylark Custom, 2-dr., full power, a/c, AM-FM radio, tape player, 350-4 cu. in. motor displacement, \$3,250. 213-328-3020. A
- Lincoln, 1969 2-dr. Continental, stereo tape, auto., a/c, \$5,600. 213-754-3914. A
- Rambler, 1964 American, 4-dr., \$610. 213-391-7781. A
- Dune Buggy, VW, glass, street legal, \$845. 213-370-2876. A
- Volkswagen, 1968 sedan, \$1,595. 213-672-0279. A
- Station Wagon, 1960 Opel, new tires, \$225. 714-524-2081. A
- Pickup Truck, 1965 GMC, ¾-ton, wide side 8' bed, w/hvy. duty trans., r/h, extras, \$1,500. 213-676-6980. A
- Chrysler, 1969 Newport Custom, 4-dr., r/h, p/s, p/b, fact. air, \$3,650. 213-322-9319. A
- Triumph, 1966 Spitfire MK II, wire whls., r/h, \$1,200. 213-756-7041. A
- Mustang, 1966, full power, 289 V-8, auto. trans., \$1,495. 213-377-1243. A
- Pickup, 1966 Chev. ½-ton, V-8, long bed, o/loads, r/h, \$1,575. 213-644-2154. A
- Ford, 1969 LTD, p/s, p/b, a/c, hvy. duty susp., 6,900 mi., \$3,800. 213-428-5629. A
- T-Bird, 1955, \$1,095. 213-695-1687. A
- Oldsmobile, 1963 Cutlass, \$750. 714-635-0627. A
- Corvette, 1963 fastback, 1966 327, 4-spd., \$2,175. 213-676-0573. A
- Station Wagon, 1968 Ford, country sedan, fully equipped, air, \$2,900. 714-897-5874. A
- Station Wagon, 1961 Chevrolet, new eng., full power, \$550. 213-644-5180. A
- Volkswagen, 1962 Deluxe sedan, rebilt. eng., \$600. 714-892-1401. A
- Chevrolet, 1962 convt., V-8, p/s, auto., \$400. 213-370-6914. A
- Station Wagon, 1961 Ford, auto., V-8, \$325. 213-378-7244. A
- Buick, 1968 Skylark custom, 4-dr., 6-pass., h/top, a/t, p/s, \$2,500. 714-536-9929. A
- Chevrolet, 1958 4-dr. sport cpe., 283 4-bbl., fact. air, needs trans., \$200. 213-329-9887. A
- Cadillac, 1962 convt., fact. air, r/h, new top, \$500. 213-663-3622. A
- Ford, 1967 Cortina G.T., 4-cyl. eng., 4-spd. trans., stereo, htr., \$1,350. 213-542-3473. A
- Ford, 1963 Galaxie XL-500, 2 dr., auto., eng. rebilt. 2 yrs. ago, \$700. 213-677-6375. A
- T-Bird, 1967 Landau, p/s, p/b, a/c, \$2,850. 714-893-5154. A
- Corvair, 1963 4-dr., auto., \$275. 213-320-0324. A
- Chevrolet, 1957 4-dr. h/top, eng. needs work, \$125. 213-329-3286. A
- Avanti, 1963, \$2,600. 213-372-9954. A
- Riviera, 1963, full power, air, \$1,295. 213-542-1248. A
- Barracuda, 1968, 4-spd., new tires, \$1,900. 213-644-9087. A
- T-Bird, 1960 customized, many extras, \$1,200. 213-428-3954. A
- Station Wagon, 1967 Plymouth, 318 eng., power, auto., trailer kit, \$1,595. 714-537-3733. A
- Chevrolet, 1968 Impala cust. cpe., auto., p/s, fact. air, 327 cu. in. V-8, \$2,500. 213-672-4957. A
- Dune Buggy, 1955 Olds, 3-spd., Hydro, roll bar, \$200. 213-370-5362. A
- Chevy II, 1963, 4-dr., \$500. 213-532-4184. A
- Volvo, 1969 144S, auto. trans., r/h, 5,700 mi., \$3,200. 213-393-3622. A
- Triumph, 1966 500, \$600. 714-535-6194. A
- Chevrolet, 1956, 4-dr., htr., 6 cyl., o/drive, Muntz stereo, mag wheels, \$250. 213-534-1696. A
- Sunbeam, 1960, convt. & h/tops, 4-spd., rebilt. eng., \$275. 213-755-6084. A
- Ford, 1961 Galaxie, convt., new trans., auto., \$400. 213-328-3364. A
- Ranch Wagon, 1966 Ford, radio, V-8, fac. air, p/s, trans., \$1,550. 213-596-1280. A
- MGB, 1967 GT, wire whls., 23,000 miles, \$2,200. 714-644-2887, 213-329-2926. A
- Porsche, 1958 coupe, 1600 cc, \$1,400. 213-379-9202. A
- Ford, 1930 2-dr. sedan, 500 mi. on new Chev. eng., Corvette rear end, Ansen sprints, Powerglide trans., \$1,200. 213-672-7683. A
- Ford, 1955 convt., 312 T-Bird eng., 4.11 gears, \$325. 805-495-9383. A
- Volkswagen, 1969 Deluxe w/sunroof, AM-FM auto. & portable radio, \$1,700. Box 2001. A
- MGA, 1959 h/top, wire wheels, \$395. 213-361-1039. A
- Corvette, 1965 cpe., AM-FM, 4-spd., posi., \$3,200. 213-835-5052. A
- Opel, 1968 Kadett L fastback, \$1,400. 213-644-7930 before 9 a.m. A
- Corvair, 1964 Monza, auto. trans., radio, \$650. 213-759-8920. A

Household Items For Sale

- Stove, copper-tone O'Keefe & Merritt, 30", gas, \$100. 213-631-4526. B
- Refrigerator, \$65. 213-534-5089. B
- Refrigerator, Coldspot, \$25. 213-679-5243. B
- Refrigerator, Coldspot, 9 cu. ft., \$25. 213-345-3634. B
- Bar Stools, 4 heavy, maple, \$12 ea. 213-542-2353. B
- Dryer, Hotpoint, 230 V., \$35. 714-827-1494. A
- Fireplace Set, modern, black shovel, brush & poker w/wall mount, never used, \$5. 213-679-2864. B
- Bathroom Sink, w/water faucets & medicine cabinet, \$10. 213-423-1363. B
- Dinette set, 1 yr. old, \$75. 213-324-8758. B
- Dishwasher, Sears portable, \$50. 714-892-8687. B
- Washer & dryer, gas, Kenmore auto., \$40. 213-645-4697. B
- Folding Table for portable sewing machine, \$7.50. 213-678-8386. B
- High Chair, folding-type, \$9. 213-324-4817. B
- Martini Set, pitcher & 8 glasses, red & white trim, \$7.50. 213-474-5726. B
- Rug & pad, all wool 12'x15' Gulistan, cinnamon, \$65. 213-675-7646. B
- Chest, 9-dwr., child's, natural finish, \$7.50. 213-675-7938. B
- Crib, stroller & comb. playpen, \$65. 213-327-1568. B
- Crib, matched, w/mattress & low dresser, Bassett, \$75. 213-376-4831. B
- Bedroom Set, Calshops provincial, other items, various prices, \$50. 213-672-2370. B
- End Tables, 2 & coffee table, maple, solid birch, \$50. 213-329-2016. B
- Chair, small, black, leather, \$15. 213-326-1876. B
- Stove, 30" gas, Signature, never used, \$75. Box 2002. B
- Range, Wedgewood, 4-burner, center grill, \$60. 213-379-2980. B
- Fireside Set, 7-pc. Colonial design, brass, \$25. Box 2003. B
- Dining Set, white formica, modern chairs, blue & green pattern, \$70. 213-542-2537. B
- Bedroom Set, mahogany, triple dresser & mirror, chest-on-chest of drwr., 2 night stands, h/board, box spring & mattress, \$250. 213-679-5195. B
- Rug Padding, waffle type, approx. 150 yds., 75¢ sq. yd. Box 2004. B

Miscellaneous For Sale

- Ammo, Super-X, 18 rds., 300 Savage 150 gr. & 34 rds. .38 Special 158 gr., \$3. ea. 213-371-3615. C
- Valve Covers, Offenhauser, for Chev. V-8, \$25. 714-838-7161. C
- Golf Clubs, 3 woods, 5 irons, \$15. 213-377-2160. C
- Surfboard, 9' Weber Performer, \$50. 213-457-9186. C
- Books, beginner's, Random House, many titles, hard cover, 70¢ ea. 213-375-9689. C
- Mini Bike, Taco 44 w/3 h.p. B&S, new clutch, \$90. 213-377-5853. C
- Trailer, single wheel, 4'x4'x1', all metal, \$30. 213-860-3512. C
- Copier, compact 3M Casual, never used, \$50. 714-544-3811. C
- Motorcycle, Hodaka 90, bored to 100, \$225. 213-672-6287. C
- Components for 1962 Corvair, new eng. & trans., \$175. 213-532-9657. C
- Motorcycle, 1967 Yamaha, 305 cc, \$425. 714-539-9339. C
- Mags, 4 14" Ansen Sprint for Ford & Good-year tires, \$325. 213-675-2514. C
- Acreage, Rolling Hills, ½ acre w/3 story uncompleted house, \$20,000. 213-370-7904. C
- Camper Jacks, set of 3 scamper hvy. duty for 8' to 10½' camper, \$45. 213-375-3711. C
- Home, Rolling Hills Riviera, 4-bdrm., 3 baths, dps., cpts., many extras, \$45,000. 213-831-1608. C
- Boat, 18' Trojan runabout, deep hull, dble. bunk, 75 h.p. Evinrude, \$1,075. 213-378-4347. C
- Bicycle, 28" ladies Schwinn, \$25. 213-541-3068. C
- Units, 6, owner will finance, \$59,500. 213-675-1776. C
- Aquarium, 5-gal., fish, pump, rocks, tank, \$10. 213-379-3134. C
- Motorcycle, 1967 Honda 305 Scrambler, \$390. 213-671-6288. C
- Lot, Big Bear, Pinewood Estates, approx. 70'x110', utils. in, paved road, trees, \$6,500. 213-679-3131. C
- Motorcycle, 1955 BSA, 700 cc, \$400. 213-329-9750. C
- Pups, snow white German shepherd, AKC, \$150. 213-326-4557. C
- Wig, blond, human hair, long, \$15. 213-422-4740. C
- TV, walnut console, b&w, stereo phono, AM-FM radio, \$125. 805-482-3429. C
- Pup, tiny yorkshire terrier, male, 14 wks. old, AKC, \$150. 714-529-8082. C
- Shotgun, model 1100 Remington, 12 ga., skeet gun w/shell catcher, \$150. 213-327-4585. C
- House, 2-bdrm., h/wood floor, lge. backyard, 47'x125' C5 lot, \$2,000 dn., bal. at 7%, So. Torrance, \$17,950. 714-795-3078. C
- House, 2-bdrm., close to Northrop, \$19,500. 213-370-1360. C
- Boat, 18', 88 h.p. O.M.C. inbd./outbd., 40 gal. fuel tank, bait tank, 2 bunks, lge. wheel trailer, many extras, \$1,500. 714-842-5961. C
- Pool Table w/access., 8', \$75. 213-755-7166. C

Miscellaneous For Sale

- TV, 23" Zenith, b&w, early American console, \$60. 213-943-3516. C
- Surfboard, 9'6" Bing, 15 mos. old, \$65. 213-675-2761. C
- Trailer, 8'x35' Biltmore, sleeps 6, \$1,300. 213-325-5394. C
- Ski Boots, 3 pr., Austrian made, dble., sizes 8½ & 9, \$5 pr. 213-645-1274. C
- Motorcycle, 1967 Honda 90, \$125. 213-672-2338. C
- Wheels & tires, 5 15" 5-stud, for Chev., w/5.90x15 Sport King tires, \$20. 213-375-0449. C
- Boat, 17' inbd./outbd., Silver Line hull, 110 h.p. Mercruiser marine motor, many access., American trailer, \$1,800. 213-862-0794. C
- Cemetery Lots, 4, San Fernando Valley Glenhaven Memorial, Sunnyslope sec., \$200 ea. or \$750 for 4. 213-324-7442. C
- Trailer, 1967 15½' Field & Stream, sleeps 6, 75 lb. ice box, hvy. 8x8 canvas awning w/ext. poles, \$895. 213-326-0513. C
- Alto Sax, \$225. 213-221-0991. C
- Piano, bench, upright, \$100. 213-320-3440. C
- Pool Table, non-slate, 4x8, \$225. 213-320-3744. C
- Camper, Tripper fold-down fiberglass & vinyl, mounts on any full size car, complete kitchen, sleeps 4, \$650. 213-324-3245. C
- Stenotype Machine, w/books, \$25. 213-371-1070. C
- Speed Boat, radio control, complete w/0.35 cu. in. displacement water-cooled eng., 3 servos, \$125; 2 servos, \$105. 213-370-7092. C
- Bicycle, full size boy's, hand brakes & basket, \$15. 714-638-4363. C
- Formals, 2 powder blue & pale yellow, worn once, size 9/10, \$10 ea. 213-328-7585. C
- Surfboard, 6'10" Takayama Scorpion, \$85. 213-374-8608. C
- Aquarium, 10-gals., filter, pump, htrs., therm., \$40. 213-326-6657. C
- Camera, Exakta VX, 50 & 135 lenses, light meter, carrying case, other access., \$125. 213-371-5072. C
- Motor, outbd. Mercury, 65 h.p., controls, tach. & tank, \$515. 213-479-5653. C
- Projector, slide, Braun, \$90. 714-523-2495. C
- Pool Table, 4' x 8', \$175. 213-534-1028. C
- Tenor Saxophone, Conn, \$120. 213-371-6275. C
- Freight Train, Lionel, diesel, electronic switches, many access., \$55. 213-542-3607. C
- Acreage, 5 acres, level, next to new development, \$750 dn., \$75 mo., \$7,500. 714-846-2627, 714-846-2244. C
- Chaise Lounges, 2 redwood, w/pads, \$25. ea. 213-373-3472. C
- Shotgun, Remington 12 ga. goose gun, mod. 29, pump action, \$110. 213-372-3827. C
- Rifle, 243 Sako Redfield, 3 x 9, variable scope, 100 rnds. ammo. & R/L dies, \$225. 213-672-4050. C
- Sterilizer, baby's 9-bottle, \$5. 213-671-9025. C
- Motorcycle, 250 cc BSA, \$300. 213-324-9780. C
- Mobile Home, 8 x 42, alum. awning, near new frostless refrig., furn., in park, 5 x 7 stor. shed, \$2,200. 213-635-0155. C
- Motor, elec., ½ h.p., \$15. 213-644-7870. C
- Socket Sets, ¼" drive, 29-pc., ⅜" drive, 14-pc., ½" U.S. & 10-32 mm metric, 40-pc., \$45 or sell sep. 213-545-6719. C
- Trail Scooter, 1965 Mustang, spare tire, \$225. 213-867-5809. C
- Components, transistorized preamp & stereo, \$95. 213-644-2809. C
- Sprocket, 82-tooth layover hill climbing, for 1963 to 1967 Honda Trail 90, \$5. 213-375-0915. C
- House, 4-bdrm., 2 baths, formal living, dining & fam. rm., many extras, ocean view, Laguna Beach, avail. Nov., \$36,500. 714-646-7649, 714-642-9214. C
- Motorcycle, 1964 Honda, 250 cc Scrambler, \$250. 213-329-6673. C
- Flute, Bundy, used 1 wk., \$95. 213-676-4875. C
- Milk Shake Machine, Hamilton Beach, commercial-type, \$15. 714-772-6612. C
- Typing Table & chair, 20x24, metal, \$25. Box 2005. C
- Tool Box, Craftsman, 9-dwr., only 5 mos. old, \$29. 213-324-5573. C
- Piano, upright antiques pecan, recently tuned, \$235. 213-696-7529. C
- Acreage, 7½ improved acres, 2 wells, 5,000 gal. storage tank, Hemet, \$20,000. Box 2006. C
- Television, 18" Zenith, portable, \$80. 213-378-5175. C
- Tape Recorder, Pencrest, solid state, AC only, \$40. 213-823-1788. C
- Motorcycle, 1966 Honda Superhawk, CB 77, 32 h.p., 338 cc, \$350. 213-547-4141. C
- Motor Scooter, All-State Putsch, \$100. 213-831-3737. C
- Bench Saw, Craftsman, 9" w/floor base & attachments, \$90. Box 2007. C
- Ring, ladies, big semi-precious cut stones from Mexico in 14K gold, \$40. 213-295-0778. C
- Tires, 2, 7.35x14 white side wall, mounted & balanced on wheels & 6.75x14 w/side wall not mounted, \$40. 714-968-5763. C
- Vacation Trailer, 14' Crown, \$425. 213-757-3407. C
- Motorcycle, 1968 350 Honda, turn lights, Bell helmet, \$675. 714-776-3769. C

Wanted to Buy

- Souvenirs, German or Japanese, of WW II. 213-675-4312. D
- Rack, basket-type for hauling motorcycle on camper. 213-679-3492. D

Wanted to Buy

- Rifle, any Winchester lever action, good condition & reasonable. 213-323-4257. D
- Lathe, Unimat, with or w/out attachments. 213-675-3885. D
- Speaker, tru-sonic, console, Model 627M. 213-377-0677. D
- Floor Jack, hydraulic, 1½-ton plus, car service type. 213-861-6404. D
- Station Wagon, 1962 Corvair, 4-dr., late model, & upright food freezer. 213-833-4811. D
- Kiln, reasonable, in good condition, for firing ceramic pottery. 213-422-8474. D

For Trade

- Parachute, AF pilot, trade for golf clubs set. 213-927-0600. E
- Carbine, Marlin .22 cal., semi-auto., trade for any caliber revolver. 213-329-1522. E

(Free) To Be Given Away

- Pup, black & white, 3 to 4 mos. old. 213-883-9965. F

Rentals Offered

- Bachelor Apt, utils. paid, furn., closed gar., close to Northrop, \$55 mo. 213-677-4305. G
- Houses, unfurn., 2 & 3 bdrm., cpts., dps., 1 & 2 baths, 2-car gar., fenced yds., \$165-\$225. 213-396-7287. G
- Apt, 3-bdrm., Ladera Heights, \$245 mo. 213-776-1598. G
- House, 2-bdrm., 1 bath, partly furn., 2-car gar., 10 min. from Northrop, \$150 mo. 213-755-2400. G
- Cabins, Lake Gregory & Crestline, sleeps 6, \$25 w/ends; \$60 wk. 213-391-2040. G
- Mt. Cabin, Green Valley Lake, sleeps 6, \$25 w/end, \$50 wk. 213-324-9769. G
- Motor Home, sleeps 4 adults, completely self-contained, 3-day min., \$25 day & up. 213-679-1358. G
- Cabin, Big Bear Lake, \$30 w/end. 213-867-0662. G
- Cabin, Lake Arrowhead, 3-bdrm., 2 baths, sleeps 10, completely furn., incl. washer & dryer, \$150 wk., \$75 w/end. 714-528-2303. G
- Cabin, lge., modern, Moonridge, Big Bear Lake, \$32 family, w/end; \$28 couple, w/end. 213-839-3279. G
- Penthouse, 3,000 sq. ft., 3-bdrm., 1½ baths, dining, den & rumpus rm., bitins, cpts., dps., unfurn., Waltheria area, \$350. mo. 213-320-4823. G

Rentals Wanted

- Home, 3-bdrm., 2 baths, cpts., dps., fenced yd., near schools & shopping, \$250 unfurn., \$265 furn. 213-326-4459. H

Child Care

- Child Care, offered, my home, Lennox area, 5 min. from Northrop. 213-677-6494. I

Rides and Riders

Rides Wanted

7:30 a.m. — 4:15 p.m.

Normandie & 186 St., Gardena. John H. Nakada. Aircraft ext. 4527, 213-324-9521.

8 a.m. — 4:45 p.m.

Los Posas & Arneill, Camarillo. Willing to meet ride anywhere in Camarillo or Thousand Oaks area. Connie Colella, Aircraft ext. 2521, 2522, 805-482-1816.

Vermont & Redondo Beach Blvd., Gardena. T. B. Fox, Aircraft ext. 1877, 213-324-8386.

Rides Offered

8 a.m. — 4:45 p.m.

Los Posas & Arneill, Camarillo. Willing to meet ride anywhere in Camarillo or Thousand Oaks area. Connie Colella, Aircraft ext. 2521, 2522, 805-482-1816.

Woodland Hills, Canoga Park area. S. J. Ehlinger, Elec. Haw., ext. 808, 213-348-3289.

Hampshire Rd., Thousand Oaks. Don Pretzer, NCL ext. 4591, 805-495-8302.

Child Care

Child Care offered, my home, hot lunch, fenced yard, 5 min. to Northrop. 213-644-5395. I

Personals

I wish to thank all my friends at Northrop for their kind expressions of sympathy in the loss of my father. NELL SMITH. L

My son & I wish to express our very sincere thanks & appreciation to all our friends at the Ventura Division for their kindness & consideration at the passing of my husband, Harry. MARCELLA BARTZ. L

My wife & I wish to express our appreciation to all our NED friends for their expressions of compassion, thoughtfulness & flowers. DICK WILLIAMS.

To all my wonderful friends at Northrop, I extend my sincere thanks & appreciation for the cards, gifts, luncheon at my retirement. MYRTLE TANNER. L

We wish to extend our deepest thanks to all our Northrop friends for the flowers and kind expressions of sympathy in the loss of our beloved father & husband, Ray Beamon. TRILBY BEAMON & CHILDREN. L

For Sale or Trade

Boat, 14', fiberglass, Steering, wraparound windshield, aqua lift pads, \$230 or trade for 45 to 65 h.p. outbd. Evinrude. 213-378-2609.

Condominium, 2-bdrm., 2-car gar., lease w/option, Fountain Valley, \$23,395, \$1,000 dn. & assume loan or trade for boat or car. 714-962-0364. M



CHINESE AF COMMANDER VISITS
General Lai Ming-T'ang, right, with F. W. Lloyd.

Chinese AF Commander, Staff Visit Northrop

Northrop Corporation was host Sept. 27 to General Lai Ming-T'ang, commander-in-chief, Chinese Air Force, and party.

General Lai was on an official tour sponsored by the chief of staff, USAF.

Accompanying General Lai were: Maj. Gen Chang Fu-Shen, deputy chief of staff for Logistics, CAF; Maj. Gen. Chen Hung - Chuan, commander, 5th Wing, CAF; Col. Liu Wan-Tsai, air attache, Embassy of China, Washington, D.C.; Lt. Col. Mao C. Paul and Capt. Wong Han,

aide de camp, CAF. Major Dale Fulton, USAF, was the escort officer.

Northrop officials taking part in briefings and discussions included J. R. Alison, F. W. Lloyd, C. R. Gates, Milt Kuska, W. E. Woolwine, R. M. Elder, J. C. Cassell, T. A. McDougall, and J. J. Richardson. Northrop USAF Plant Representative Col. R. P. Fuqua also took part.

The Chinese Air Force is one of the Free World military organizations equipped with the Northrop F-5 tactical fighter.

Couple Helps Parents Celebrate Their 61st Wedding Anniversary

Mike and Gladys Sanford, both Electro - Mechanical Division employees, recently helped Mrs. Sanford's parents celebrate their 61st wedding anniversary. The Sanfords have celebrated 35 anniversaries of their own.

The honorees, Mr. and Mrs. Charles Beaty, were married in

1908 when she was 17 and he was 20. They had known each other since Mrs. Beaty moved to Michigan when she was four years old. They went to school together and did their courting in a horse and buggy, Mr. Beaty recalled.

Their four children, ten grand-

children, seven great grandchildren were present for the 61st anniversary gathering together with so many guests that the party had to be moved to a local hall to accommodate them all.

Today, Mr. Beaty at 81 and Mrs. Beaty at 78 still are active, living alone in a mobile home in Santa Ana. Mr. Beaty bicycles four miles a day, mows lawns and helps his neighbors. Mrs. Beaty finds recreation in her rose garden, Canasta Club and the Rebeccas Lodge.

Mrs. Sanford is an electronics assembler, Manufacturing. She has been with Northrop eight years. Mr. Sanford is in Tooling and is a 15 year Northrop veteran. While their 35 wedding anniversaries can't compare with the 61 of Mrs. Sanford's parents, they claim it is the mark that they are shooting for.



CELEBRATING 61 WEDDED YEARS

Mr. and Mrs. Charles Beaty, left, with daughter who has but 35 wedding anniversaries of her own.

Three Veteran Employees To Retire November First

Three veteran Electro-Mechanical Division employees will retire Nov. 1. They are James Roncoli and E. M. "Sandy" Sandaez with 15 years each, and E. C. Richmond with 11 years service.

Mr. Roncoli joined the Division in 1954 and has worked in Metal Processing since that time. His retirement plans call first for a trip back to New York to see relatives and old friends. Then he might spend some time helping his daughter in her business. When not busy with that, he expects to do more traveling.

Mr. Sandaez came to work at Anaheim in 1954 also as a dis-

patcher and was area dispatcher with the Boeing 747 subassembly work at the time of his retirement. He formerly worked for J.C. Penney and the American Bridge Company before joining Northrop. After a trip east, he will probably take a selling job because he likes to meet people and does not want to "just sit around." If that doesn't fill all his time, he can be found at football and baseball games.

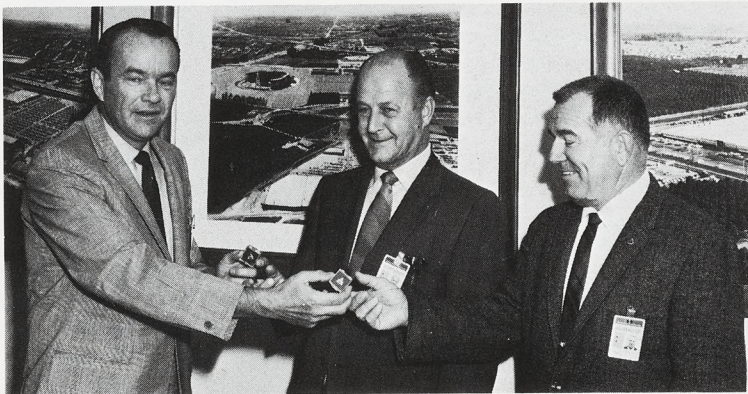
Mr. Richmond, with the Packing and Crating department, joined Northrop in 1959. He was four years with the Fullerton plant when it was in operation and the rest of his time has been at Anaheim. Before joining Northrop he had been in the automobile dealership business in Wisconsin. As to his plans after retirement, they have been decided for him: "I will paint the house. My wife says so!"

Handicaps Wanted

Electro - Mechanical Division golfers expecting to play in the Division's annual Christmas tournament are urged to start turning in their private score cards, George Baldwin, golf commissioner, said. The cards are needed to establish handicaps for the tournament.

This year's holiday tournament is expected to be held on Monday and Tuesday, Dec. 29 and 30. The course and details will be announced later.

Veterans Honored For Long Service



DON McINNIS, manager, Operations department, presents 20-year service pins to Ralph Dobner, center, and George Horner. Both men have been with Northrop since 1949.

On The Job



KRIS ECHOLDS is the new receptionist in Building Y-3, but she is not new to Northrop. She formerly worked in Purchasing before taking her present job of welcoming visitors to the Electro-Mechanical Division.

Ocean Science Moves Offices

The Electro-Mechanical Division's Deep Submergence Systems project has moved to larger facilities in Silver Spring, Maryland, because of expanding activities in engineering and management programs for the U.S. Navy.

As systems engineering support contractor, Northrop assists the Navy's Deep Submergence Systems Project (DSSP) in a multi-million dollar program aimed at improving Navy capabilities in three basic undersea operations:

- Speedy recovery of survivors in submarine disasters.
- Creation of deep ocean bases where divers may live and work for weeks at a time.
- And recovery or salvage of articles at great depths.

The ocean science oriented organization also will provide integrated logistics and configuration management support for other Navy programs.

New offices are at 8728 Colesville Road, Silver Spring, Maryland. William Jenkins is program manager and reports to George Mangurian, manager of Northrop Support Operations.



JOHN BURKE DELIVERS BADGES

To Joan Gullett, Mae Rock and Jean Lepiani in Polaris area.

Badge Change Completed

The changeover of Electro-Mechanical Division badges to the newly adopted corporate design has been completed, according to Gene Jessick, manager, Plant Protection and Security.

By taking the work to the employees instead of having personnel report for badge making, the Security office reduced the required time from about 30 minutes per person to not more than five minutes for each.

This was accomplished by a Security office team of John Burke, Norma Schrupf, Peck Campbell and Donna Fish. They first issued an envelope to each person to be turned in when he or she reported for photographing. The picture taking was done by a camera team that visited each section so that job inter-

ruptions would be held to only a few minutes.

After laminating to the new forms, the badges were placed back in the employee-prepared envelopes and delivered to personnel at their work stations. This system permitted the badges to be made at the rate of 140 per hour. An estimated 1,200 man-hours were saved by this system over what would have been required if each person reported to Security.

Ken Munger Praised For Returning Wallet

Ken Munger, a member of the night cleanup crew at the Electro - Mechanical Division, has been commended in a letter from Merrill E. Skilling, chief plant engineer, to George Daech, manager, Southern Counties Building Maintenance.

According to Mr. Skilling's letter, Mr. Munger found a wallet containing \$98 while cleaning up Oct. 1. He turned the lost property over to his supervisor, Linda Carr, who gave it to Don Schneider, the Division's night maintenance foreman. It later was returned to its owner.

"Your company is to be commended again for the honesty of your employees," Mr. Skilling wrote. "Please express my appreciation to Mr. Munger."

This is the second time in recent weeks that similar instances have occurred, Mr. Skilling said. Earlier Mark Whiting, also a member of the cleanup crew, found some money in a trash can he was emptying, and turned it in to the Security office.

Northrop-Sponsored Scout Makes Eagle



ROGER FRANKLIN YOH0, member of the Northrop sponsored Troop 70, Boy Scouts of America, is congratulated by Jaime Lopez, Northrop's industrial representative to the Scouts, after Roger was presented his Eagle Scout award at a recent Court of Honor. The court was held at the Northrop Recreation Clubhouse and the award made by Lyle Nissen, committee chairman for Troop 70. (Photo by Joe Vaccarino, Northrop Electro-Mechanical Division Camera Club.)

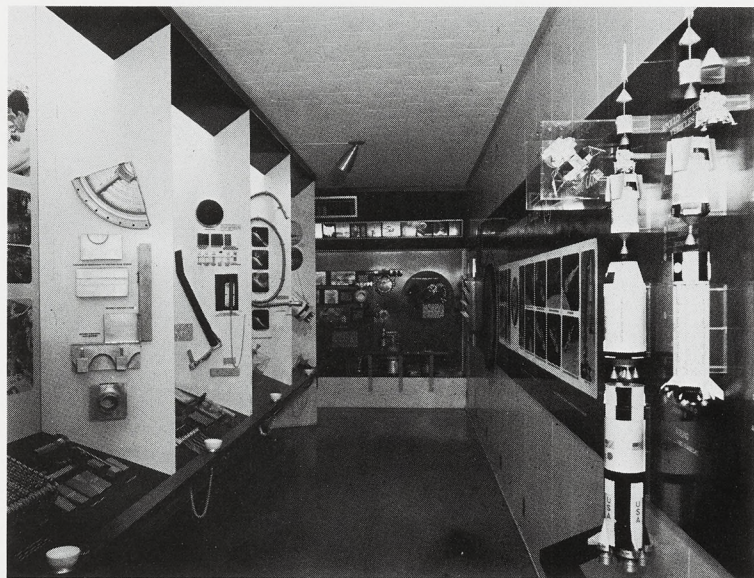
NORTHROP NEWS

ELECTRO-MECHANICAL DIVISION EDITION

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November 5, 1969



SPACE EXHIBIT TELLS APOLLO STORY

NASA Apollo Exhibit Has Six-to-Six Schedule

The NASA traveling space exhibit van, CRAFTSMAN SHIP, will be on display at the Electro-

Mechanical Division on Nov. 20 and 21.

The van, featuring an unusual display of space and Apollo photographs and models, will be centrally located in the parking area directly opposite the main gate at Anaheim. It will be open from 6 a.m. until 6 p.m. during the two days. This will provide time for personnel to walk through the exhibit before and after shifts and during lunch and coffee breaks.

A request has been made to NASA to permit the van to be moved to Page Court on the afternoon of Friday, Nov. 21. If approved, the unusual space exhibit will be displayed in front of building 42 from 3 to 4:30 p.m. on this date.

In addition to photographs and scale models of the Saturn booster and Lunar Environmental Module, there will be a taped message from Astronaut Frank Borman encouraging quality workmanship in space contractual work.

The Electro-Mechanical Division is associated with the NASA Apollo space program through the Lunar Receiving Laboratory program of the Northrop associate company, Brown and Root-Northrop.



GEM CLUBBERS

Doris Pelfrey and Genevieve Miller lift rubbish into collection truck driven by Land Management crews, left.

Gem Club Helps Outdoor Cleanup

The Electro-Mechanical Division Gem and Mineral Club participated last week in the California Outdoor Recreation League's part of the 14-state "Johnny Horizon" cleanup campaign.

The campaign, supported by government organizations and recreation clubs, undertook to cleanup litter from public recreational areas in the Western states, according to Gaylord Miller, club commissioner.

The Northrop club aided in cleaning up Mule Canyon near the historic mining town of Calico, Calif. They were joined by 40 other clubs, including Boy Scouts.

"In all, the clubs gathered 4,400 bags of litter in this area," Mr. Miller reported. "There were 514 cars and more than 1,000 people involved."

The area known as Tin Can Alley was not touched. It is on private land and some of its rusted cans go back to the 1880's when Calico was a roaring mining town.

In addition to being a public service, members of the Gem and Mineral Club reported finds of agate and other semi-precious stones during their search for tin cans and litter.

'Giant Step' to Reduce Costs; Offers Extra Awards for Ideas

The Electro-Mechanical Division will take a "Giant Step" toward achieving cost reduction by joining other Northrop divisions in Operation Giant Step, according to Frank W. Lynch, vice president and general manager.

Giant Step was conceived as a program to reduce manufacturing costs for Northrop's portion of the Boeing 747 jetliner program.

The Electro-Mechanical Division Giant Step will place strong emphasis on its part of the 747 work which includes manufacturing stringers and assembly of fuselage panel frame members, floor beams and miscellaneous items. However, the Division's Giant Step will be expanded to include cost reductions in all phases of operations.

Something Extra

Giant Step is a special program which supplements the regular Suggestion Award program and will run from Nov. 10 through Dec. 12. It will include several special features. Eligibility will be liberalized to include operation management up to and including general supervision. Also there will be prizes awarded in addition to the normal cash suggestion awards made for acceptable money-saving ideas.

Each suggestion submitted will

entitle the suggester to compete for the prizes. Ten prizes will be awarded each week and 30 turkeys will be given away during Thanksgiving week. In addition there will be a grand prize awarded Monday, Dec. 15 of a one-week trip to Hawaii for two or \$800 cash. The trip will be aboard a Pan Am 747 jet.

All suggestions received during Operation Giant Step will be reviewed by an Operations Committee with Chuck Hargrove as chair-

man. Assisting Mr. Hargrove will be Bob Philbrick, Grant Gunder-son, Don Foulds, Chet Druliner, Frank Merrell, Art Eskel, Addie Weishaar and Joe Saline. Al Van Der Most will be secretary.

The Quest

The committee will be especially looking for cost reduction savings in the areas of manufacturing, material, industrial engineering, purchasing and quality management by ways that eliminate, combine or simplify operations.

Template Spray Changes Help Reduce 747 Cost

Changes in spraying templates used in construction of Boeing 747 floor beams, worked out by Methods Engineering in cooperation with 747 Production, eliminated potential hazards and reduced template painting costs by nearly 50 per cent.

Methods Engineering is responsible for factory layout, facilities engineering and planning, factory methods and machinery equipment development, according to its manager, Frank Merrell.

Straying Fumes

"The problem involved fumes from paint used to spray templates used to locate holes in production of Boeing 747 floor beams, frame assembly and details," Mr. Merrell said. "Fumes from the lacquer base paint were getting into the building air conditioning system."

Faced with the expensive alternates of moving the painting to an outside location or reconstructing the air conditioning system, Methods Engineering worked with Process Engineering, Production and paint vendors on a new system utilizing a water base non-toxic non-flammable paint to replace the lacquer previously used. The change not only eliminated the fume problem, but reduced material costs from an av-

erage of \$470.75 to \$159.17 per month. Annual cost savings are expected to be \$3,738.96.

The problem was worked out by R. J. Mohulski working under Methods Supervisor Ed Hofmayer in cooperation with Bill Gramm and John Murray, 747 Production foremen, Mr. Merrell said.

Christmas Party Coming Dec. 21

The 1969 Electro-Mechanical Division Children's Christmas Party is set for Dec. 21 at the NRC Clubhouse, 1834 Valencia, Fullerton, according to Randy Lee, special events chairman.

The party will include a Santa Claus, pony rides, a merry-go-round, elves who will mingle with the children, refreshments, and gifts for all children under 12. Grandchildren as well as one's own children are welcome.

Important

Invitations will be included with payroll checks on Nov. 20 and 21. "Anyone failing to receive an invitation should pick up one at Personnel Activities," Randy said. "The filled in form, listing ages and names of children coming, should be returned to Personnel Activities not later than Dec. 8. That gives us time to make sure each child has a suitable present."

Admission to the party will be by ticket only. Tickets can be picked up at Personnel Activities on Dec. 15.

The party will last from 12 noon to 4 p.m.

NRC COMMITTEE NOMINEES PICKED

The Electro-Mechanical Division NRC nominating committee has completed its selections, according to Vaughn Peak, president, NRC Executive Committee, and an election to fill Executive Committee positions for 1970 will be held Nov. 8.

Positions to be filled include president, vice president, treasurer, secretary and sergeant-at-arms.

CLUB HELPS PLAN HOLIDAY TRIPS

Northrop personnel who are members of the Automobile Club of Southern California can get trip planning for their Christmas vacations each Wednesday at the Electro-Mechanical Division Personnel Activities.

Randy Berry, AAA representative, visits the division each Wednesday from 11 a.m. until 12 noon. In addition to trip planning he also provides other club services for members, including maps, insurance, and membership renewals.

GETTING THE WORD ON TURKEY TROT FROM EXPERT



REALLY BIG DEAL, HUH? asks Frank Barb, Nick Ranill, Pat Woods, Al Fredette and Dee Hobbins. And the answer, straight from the turkey's mouth is that the Annual NRC Turkey Trot at the Valencia Clubhouse on Nov. 22 will be the season's biggest social affair. "And I'm not just gobbling!" the turkey added. There will be dancing from 9 p.m. until 1 a.m. with music by the Tune Launchers plus refreshments and door prizes. And it is all for only two bucks per person.

T-38 Joins The U.S. Navy



ROY JACKSON, right, Aircraft Division vice president and assistant general manager, speaks at acceptance ceremonies at U.S. Naval Test Pilot School, Paxtuxent River, Md., when first Northrop T-38 joined U.S. Navy. At left is Rear Admiral H. L. Miller, commander, Naval Air Test Center, and, center, Captain R. P. Prichard, Jr., director, Test Pilot School. Navy will get five T-38's.

NORTHROP SON

Gary Orcutt Snagging Passes for Trojans

Another Northrop son is in the lineup for the University of Southern California's Trojan varsity football team.

Gary Orcutt, son of Bill Orcutt, Industrial Supplies, Procurement and Control at the Aircraft Division's Mariposa facility, is a starting flanker. An Oct. 8 Northrop News story told of SC full-back Charlie Evans, son of Byrda Evans of the Electronics Division.

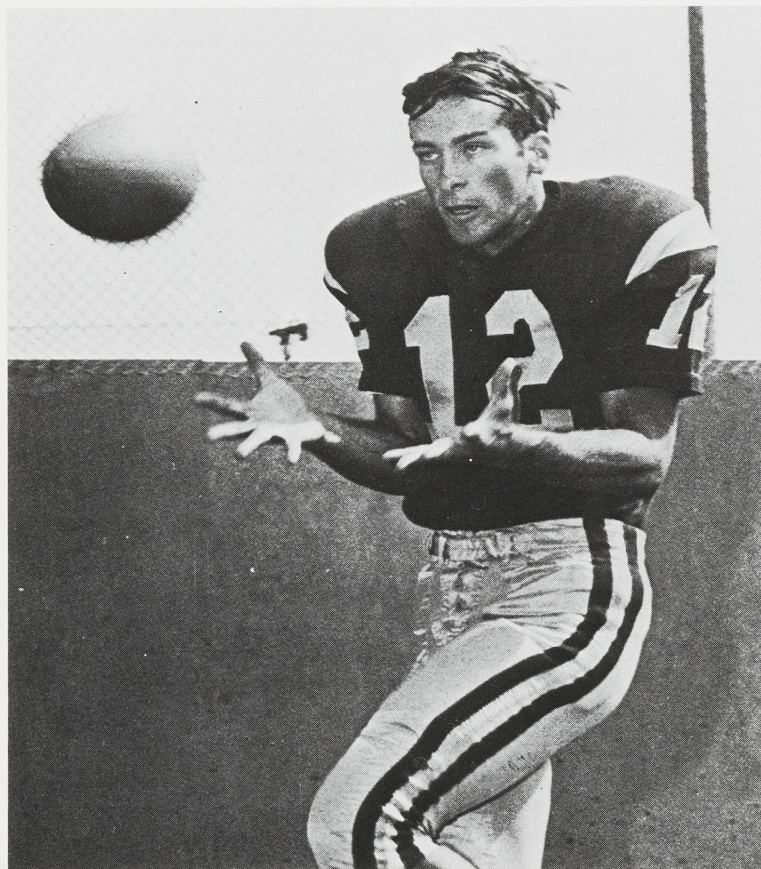
A senior this year, Gary brought a wealth of experience to USC. The Buena Park High graduate was an All-American at Fullerton JC where he caught 54 passes for 854 yards and 13 touch-

downs in 1967.

As a transfer junior Gary shared playing time with Bobby Chandler last year and caught two passes for 18 yards.

In the first few games of this season the 6-1, 175-pounder caught six passes for almost 100 yards and a touchdown. He is becoming a more frequent target for quarterback Jimmy Jones in SC's Rose Bowl bid.

Coach John McKay describes Gary as "one of the finest receivers to ever play at SC, a combination of speed and good hands." Gary can sprint 40 yards in 4.6 seconds.



TROJAN GARY ORCUTT PULLS ONE IN USC starter is son of Aircraft Division's Bill Orcutt.

Mexican Americans Laud Northrop For Equal Opportunity Job Effort

Northrop Corporation was one of three Southland industrial firms receiving Gold Aztec Awards at the second annual Aztec Awards banquet Oct. 23 at the Statler Hilton Hotel.

Sponsored by the Mexican American Opportunity Foundation, the banquet paid tribute to industrial firms, civic leaders and individuals who have helped fur-

ther the cause of equal opportunity employment for the Mexican American.

Fifty Aztec Awards were presented by the keynote speaker, The Honorable James Hodgson, United States Under Secretary of Labor.

Gold Aztec Awards were reserved for firms who have taken the lead in furthering the aims of

the Mexican American program. Besides Northrop, the Minnesota Mining and Manufacturing Co. and Ford Motor Company received Gold Aztecs.

Frank Smith, Corporate director of Industrial Relations, accepted on behalf of Northrop. All major Northrop facilities in the Southland were represented at the banquet.

☆ Booklet Spotlights Northrop's Role With Minorities ☆

Northrop's role in hiring, training and retaining members of minority groups has received added attention with the publication of a 16-page booklet by the Mexican American Opportunity Foundation.

While discussing Northrop's activities in employment of minorities, the "The MAOF Story at Northrop" features the specific stories—with pictures—of some Mexican Americans at Northrop.

Describing Northrop's role as "one of the more successful partnerships" in MAOF, the text also notes that "Northrop 'opened the door' for MAOF as the first company to sign a subcontract with MAOF under the Manpower Development Training Act, and hired the first MAOF trainee in 1966."

In 1963, the text notes, the year MAOF was founded, Nor-

throp employed 481 Mexican Americans. In 1966 that number rose to 560. A year later it was 829 and today there are more than 1,100 Mexican Americans on the Northrop payroll. Two-thirds of them are at the Aircraft Division.

Some 58 per cent of the trainees at the Venice Jobs Center, operated by Northrop, were Mexican Americans. And, while 16 per cent of the work force in the Greater Los Angeles area represent minority groups, Northrop's minority group members comprise 19 per cent of the total personnel.

Through the continual training and advancement programs at Northrop, many Mexican Americans now hold jobs in supervision or management. Many had a limited formal education; some started on the right foot with a college education.

The booklet also notes that Roland B. Scott, a member of the MAOF board of directors, is active in recruiting minority members at the Aircraft Division. Rex Fairless, Industrial Relations director at Ventura, also serves on the MAOF board.

They Teach High School for a Day

Eight men from Northrop served as "teacher for a day" with high schools in the South Bay area on Oct. 31.

The program sponsored by the South Bay-Harbor Industry-Education Council was set up to relieve local science teachers so they can attend a regional conference sponsored by the National Science Teachers' Association.

Those participating from Northrop were Dr. G. H. Bishoff, R. A. Johnson, J. T. Gallagher, M. S. Cahn, E. D. Onstott, R. L. McCormick, W. N. Koepeke, Jr., and J. B. Sinacorn.

REPORT CHANGES

Have you been married recently? Added a child to your family? Moved to a new residence? Has that teenage son or daughter married and altered the number of your dependents?

These are questions the record keepers like to keep up on. They are interested in you and want to make sure you receive all the benefits you are eligible for.

So to stay up-to-date with the records and the benefits be sure to contact your division Personnel representative.

AFRICAN TOUR

Initial planning session for a 28-day tour of Africa to be held next fall has been set for 7:30 p.m. Nov. 14 at the NRC Clubhouse, Hawthorne.

Sponsored by NRC Travel Clubs, the \$1,895 package will include visits to game reserves in Kenya, Tanzania, Rhodesia and Uganda.

TURKEY SHOOT

Ten turkeys will be prizes Nov. 20 when the Northrop Gun Club meets at 7 p.m. at the Los Angeles Gun Club for competition.

Travel Club Will Outline Details For Hawaii Trip

The NRC Travel Club will hold its final meeting to discuss pertinent information on the annual yearend trip to Hawaii at 8 p.m., Dec. 5, at Dandel's Restaurant, 12000 South Western Ave.

Joe Cribbs, Aircraft Division travel commissioner, said that because of the tremendous popularity of the Hawaii trip, 10 additional spaces have been secured for the 12-day trip.

Employees planning to attend the meeting can call Lois Winchester, ext. 2486, for reservations.

Trip brochures are available at Personnel Activities.

REMINDER

Northrop Credit Union encountered a short delay in distributing statements of accounts for the period ending Sept. 30.

Accompanying the statements were auditor's account verification requests.

Employees who do not receive the latter by Nov. 14 are asked to notify the independent auditor, John B. McKnight and Company, 2926 Santa Monica Blvd., Santa Monica, Calif. 90404. Include your name, address and Credit Union account number in all correspondence.

Spanish Navy Trainees



SPANISH NAVY civilian members, seated, receive instruction in the operation of the Northrop-developed AN/SRN-12 Omega Navigation receiver. Upon their return home, students will help install, checkout and maintain Omega units aboard Spanish vessels. Sy Shenkman, left, and Bill Powell, right, of Electronics Division were instructors.

Northrop Hosts Quarterly GIANT STEP Review



NORTHROP PRESIDENT JONES WELCOMES CONFEREES
Representatives of all major 747 subcontractors on hand.

NORCREDIT Now Available — Speeds Loan Processing

Northrop is now accepting applications for a new service that promises added convenience to members in conducting routine Credit Union business.

It is called NORCREDIT.

NORCREDIT is simply a means of establishing a line of credit with the Credit Union that will lead to a speed-up of processing routine loan applications within accepted and approved limits. It amounts to pre-approved credit.

Less Waiting

With approval of NORCREDIT applications and issuance of cards symbolic of this approval, members seeking loans within approved limits will be able to utilize much shorter application forms than those normally re-

quired by the Credit Union.

NORCREDIT approvals will be good for a period of one year from the issue date, but must be re-approved each year.

Northrop Corporation employees who have been employed for one year are eligible to apply for NORCREDIT. The maximum of loans available through this service, as well as all Credit Union services, is based on seniority and pre-established factors which include good credit.

Information on this new service is available through the main Northrop Credit Union office in Hawthorne, ext. 1117.

Northrop Ventura operates its own Credit Union which is not involved in this new service.

Representatives of The Boeing Company and major 747 Program subcontractors gathered at the Aircraft Division Oct. 21 for the third quarterly GIANT STEP review.

GIANT STEP is a program-wide effort aimed at increasing the pace of cost reduction in 747 jetliner production.

Quarterly reviews provide participants with the latest information on the 747 Program, the total GIANT STEP effort, the status of subcontractor cost-cutting programs and features exchange of ideas relating to cost reduction.

Previous reviews have all been held at Boeing facilities.

Northrop President Thomas V. Jones welcomed the representatives and advised them that "cost reduction is a very serious business at Northrop."

Mr. Jones spoke of the belt-tightening currently required in the aerospace industry.

"This increasingly competitive atmosphere requires a constant search for, and implementation of, new cost saving and cost reduction techniques," he said.

"Our GIANT STEP program at Northrop is moving forward vigorously and, I think, with gratifying results. We have welded a number of cost reduction programs together under the GIANT STEP banner. I believe the results we have attained will interest you," Mr. Jones added.

Target Topper

J. H. Staley, Northrop GIANT STEP manager, reported Northrop's progress.

"At the beginning of 1969 we set an ambitious cost saving goal for the 747 program. At the end of the third quarter we had attained 112 per cent of that goal," Mr. Staley said. "We have asked for and received a new target goal representing a 30 per cent increase over the original target. We are now working vigorously to meet and exceed this goal."

Mr. Staley reported the total Northrop contribution to the 747 production and design effort.

This includes floor beams and stringers from the Electro-Mechanical Division, wing-to-body fairings from Northrop Ventura, floor assemblies from Northrop Pacific and the 153-foot-long main fuselage of the 747 from the Aircraft Division.

George D. Nible, Boeing vice president and general manager, 747 Division, led his firm's delegation at the review. Key Boeing participants included W. W. Buckley, director of Operations; G. J. Tobias, director of Outside Production; William McCoy, sub-

contract manager; A. H. Tagland, program manager, Cost Improvement Plans; and H. J. Iverson, Boeing's resident manager at Northrop.

Northrop's participants accompanying Mr. Jones included G. F. Douglas, senior vice president; F. W. Lloyd, vice president and Aircraft Division general manager; Welko Gasich, vice president and Ventura general manager; and the Aircraft Division's L. H. Brennwald, vice president and 747 Program manager; M. J. Fayrweather, manager of 747 Operations; L. W. Klauer, manager of 747 Technical; P. A. Jacobs, manager, Military Aircraft and Support Operations; Mr. Staley, manager of 747 Program Plans; E. A. Roelof, manager, Management Cost Improvement Program; and W. P. Tanner, manager, 747 Program Management office at Boeing. R. D. Philbrick,

program manager, represented the Electro-Mechanical Division with L. B. Carroll, program manager, attending from the Ventura Division.

Subcontractor reports were made by representatives of Fairchild Hiller, Cleveland Pneumatic Tool, Rohr, Goodyear Aerospace, North American Rockwell and LTV Aerospace.

More To Be Done

In his closing comments, Mr. Nible extended his appreciation to Northrop for hosting the review and to Northrop and other major subcontractors for the significant progress made during the past quarter in reducing costs while adhering to rigid operating schedules. He asked for unceasing dedication in aggressively reducing cost and expressed full confidence that future joint efforts would result in continuing significant program savings.



GIANT STEP QUARTERLY REVIEW IN PROGRESS
At left is George Nible, Boeing 747 Division general manager.

Seeing Europe With NRC



THIRTY-SEVEN from Northrop pause for a group picture atop a hill overlooking Florence, Italy, during the recent NRC-sponsored European tour. The travelers visited 15 countries and the consensus was: "A terrific trip. Don't miss it next year." Jack Kinzer, Electro-Mechanical Division, was the tour coordinator.

T-38 SURPASSES 5,000 FLIGHT HOURS

The first Northrop T-38 Talon jet trainer to pass the 5,000-hour flying mark in the Air Force flew its history-making sortie recently at Williams AFB, Ariz.

Marine Corps Lt. Jack P. Brown, a student pilot, and Capt. Douglas A. Rotman, USAF, an instructor pilot, were aboard.

Known as Number 897 at Wil-

liams, the T-38 is a "Lead the Force" aircraft, which puts it in an accelerated flying program to evaluate functional efficiency, an Air Force news release indicates.

The aircraft was accepted at Northrop's Palmdale facility July 18, 1962, and delivered to Williams AFB on July 26, 1962.

NRC ELECTIONS NOW IN PROGRESS

Northrop Recreation Club's annual election of NRC commissioners is currently in progress through the action of individual activities. A list of exact election

times and dates is posted on in-plant bulletin boards.

The annual Aircraft Division NRC election of an executive committee will be held Nov. 8.

NORTHROP NEWSMAKERS

Murray Blustein, Aircraft Division, has been elected a member of the Executive Board of Directors of the American Society of Tool and Manufacturing Engineers. He also was named administrative vice president of Northrop Toastmasters.

Dr. M. H. Kamdar, Northrop Corporate Laboratories, has authored a paper titled "Cleavage in Zinc" for publication in Acta Metallurgica.

Barney Gaiennie, Aircraft Division, will be a speaker at a "Continuing Education in Manufacturing" meeting of the Society

of Manufacturing Engineers, Nov. 20, in Long Beach.

Tu Chen, Northrop Corporate Laboratories, is co-author of a paper titled "Effect of Local Atomic Order on Magnetic Properties of Pd-rich Copper-Palladium Alloy" prepared for publication in Physical Review and the Journal of Applied Physics.

W. S. Kosidlak, Aircraft Division, has discussed "Establishing and Operating a Value Engineering Organization" before a Channel Island Section, Los Angeles Chapter, Society of American Value Engineers meeting.

Mary Clerico, Ventura, has received a professional designation in Government Contracts Management from the UCLA Extension program.

Roger Knacke, son of Theo Knacke, Ventura, has earned his doctor of philosophy degree in physics from the University of California at Berkeley.

A community-wide businessmen's breakfast meeting, "The Christian in Business," was organized by **Jim Rummell**, Ventura. Mr. Rummell is active in the Westminster Presbyterian Church, Westlake.



TOURING NORTHROP'S 747 ASSEMBLY LINE
W. W. Buckley, right, Boeing 747 director of Operations, confers with Northrop's Max Fayrweather.

Art Takes Different Forms for Northrop Hobbyists



RESEARCH IS ESPECIALLY IMPORTANT
Carl DeLapp looks deeply into his subject, the Plains Indians.

Painstaking Research Goes Into Carl DeLapp's Indian Paintings

It takes more than a brush to paint pictures. It takes a knowledge of history, a collection of relics ranging from a medicine man's rattle to a stone war club, excavation in old campgrounds, visits to Indian reservations, and reading every possible book on Indian lore.

At least that is the way Carl DeLapp, Electro-Mechanical Division Polaris Support Depot, works. For every hour he spends at his easel he spends a dozen other hours researching the paintings he does of Plains Indians.

"I don't think a painting should just be pretty colors to hang on a wall," he said. "I think it should be authentic history. I want every detail I paint to be historically accurate.

An example is a recent painting he did of an Indian father drawing pictographs on a stretched hide to teach his son

the history of his tribe. Every detail from the way the buckskin is stretched over a sapling frame to the firelight reflection was carefully researched.

Mr. DeLapp is himself a quarter Cherokee Indian and was born in the Indian country of Oklahoma. This heritage, plus an interest in the paintings of Charles M. Russell and Frederic Remington turned him to his present avocation. Originally he specialized in landscapes, but now devotes himself exclusively to western scenes.

Mr. DeLapp constantly searches for authentic detail for his work. Recently he attended the All-American Annual Indian Convention at Costa Mesa. Here he studied Indian dances, ceremonies and costumes.

Next summer he plans a trip to reservations and museums in Montana and Wyoming. He also hopes to study a buffalo herd.

Al Helner's Works Laud Sailing Era

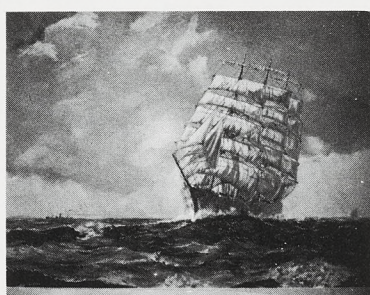
Al Helner's painting of the German ship *Herzogin Cecille* won third prize at the recent Sixth Anniversary Show of the Inglewood Art League.

Mr. Helner, supervisor of Electronics' Standards and Calibration Laboratory, specializes in painting the great sailing ships of the 18th and 19th centuries.

"Those were tremendous times," said Mr. Helner commenting on the days when men set sail with the wind as their only form of power.

"I guess you could say my mission in life is to perpetuate the sailing ship era. After all, you can't help but admire the men who built and sailed ships with 30 to 40,000 feet of canvas."

Although he has never been aboard a sailing ship, Mr. Helner obtains accuracy in his paintings through research. For his painting of the "Battle of Trafalgar" he used engineering drawings of the ships involved, researched the time of day the battle took place, and even the direction the ships were facing.



"Herzogin Cecille"



ANIMALS, FLOWERS, FIGURINES
Ventura Maintenance Supervisor Earl Morris has a 'hot' hobby.

Ventura's Earl Morris Uses An Acetylene Torch

While many artists create through somewhat delicate means, the Ventura Division's Earl V. Morris has a stronger medium—an acetylene torch.

Mr. Morris, supervisor of the Maintenance branch, uses copper and steel in a welding technique that produces metal sculpture. His creations include flower arrangements with long, steel stems; birds of the beach and desert; animals

and caricatured figurines.

It all started about three years ago. "My wife and I visit art shows frequently—she paints oils—and I saw some of this metal stuff.

"I thought I could do it, too. So I set up a work bench in my garage and began doing it," he explained. Working sporadically, "just when I feel like it," he has produced more than two dozen pieces.

His two married daughters have some of them, including an abstract which he "didn't like very much," and the rest are displayed on a wrought iron rack in his Camarillo home. The largest is about three feet high.

Beep Beep

A life-size replica of a road-runner bird is his favorite. It took some 15 man-hours to make. A large flower display required 20 hours, the 15-year Northrop employee explained.

Mr. Morris picks up most of his materials at weekend swap meets "where it is very cheap." The most expensive material is the welding rod. With the welding rod and appropriate use of heat he is able to achieve color changes.

And although he has been offered up to \$30 for some of his work, he's not interested in selling it. "I just do it for fun. My wife paints for the same reason."

Mr. Morris does offer some as gifts, however. Ventura Division Nurse Elinor Eckels has one of his flower displays in her office and Eileen Munro, secretary to M. A. Maurer, has a metal baboon.

Mr. Morris gets some of his sculpture ideas from frequent trips to the desert. He and Mrs. Morris are also avid rock collectors.

OPINIONS, PLEASE—What Will Be The New Trend In Women's Fashions?



Pam Duket, statistician, Aircraft:

Short skirts, bright scarves and mod watches are here to stay. But those clunky shoes and colored stockings have to go.

Mrs. Duket



Angie Clayton, senior secretary, Aircraft:

I like the fashions short and I am sure that they will stay that way for a long time.

Mrs. Clayton

Dick Terry, Packing and Crating, Electro-Mechanical:

Well, you know what they say, "all that goes up must come down." Also, down seems the only direction left for hemlines to go.



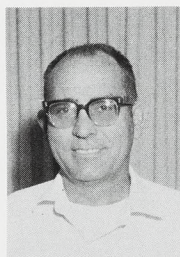
Mr. Terry



Anna Maria Costanza, blueprint control clerk, Electronics:

I think mini skirts will be around for a long time because everybody seems to like them. Other than that I feel the trend will continue to have the Roaring 20's look.

Mrs. Costanza



Mr. Davison

Walt Davison, test engineer, Electronics:

The skirts can't get any shorter and I don't particularly want to see them get any longer so I hope things remain the way they are.



Mrs. Line

Lee Bradley, 747 assembly leadman, Ventura:

That's a real puzzler. I guess they've gone as far as they can go now, so the future is totally unpredictable.



Mr. Bradley

Kathy Prins, key punch operator, Ventura:

Skirts will probably get shorter—they certainly won't go down. My husband thinks the trend will be toward more bra-less apparel, but I don't agree with half of what he says.



Mrs. Prins

**IS IT NEWS?
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HAWTHORNE**

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Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

Ford, 1968 LTD, 4-dr. Bougham, fully equipped, all power, \$3,595. 213-375-3711. A

Truck, 1959 Chevrolet, w/Highway Cruiser camper, \$850. 213-679-3492. A

Chevrolet, 1964 Impala, auto., radio, \$450. 213-372-3373. A

Volvo, 1969 144S, auto. trans., r/h, 5,700 mi., \$3,200. 213-393-3622. A

Mustang, 1966, V-8, auto. trans., \$1,395. 213-377-1243. A

Buick, 1955 Century, 4-dr., h/top, r/h, rebilt. eng., \$375. 213-371-3615. A

Volkswagen, 1969, \$300 for equity, assume loan, \$1,700. 213-542-1248. A

Chevrolet, 1964 Super Sport Impala, \$995. 213-375-2127. A

Station Wagon, 1962 Jeep, b/seats, wide rims, 4-whl. drive, \$900. 213-378-0580. A

Cougar, 1968, auto. trans., radio, fact. air, p/s, V-8, \$2,650. 213-596-1280. A

Porsche, 1960 S-90, rebilt. eng., knock-off chrome whls., lug. rack, \$2,500. 213-379-8493, 213-545-1782. A

Austin Healey, 3000, prod. race car, o/drive, 210 h.p., micro-sealed, \$1,500. 714-968-4573. A

B.M.W., 1964 1800 Ti, \$950. 213-397-5943. A

Station Wagon, 1962 Land Rover, 4-whl. dr., 12-pass., custom installed 221 cu. in. Ford V-8, many extras, \$1,750. 714-539-2098. A

Triumph, 1968 TR250, 6 cyl. eng., 4-spd. trans. w/overdrive, r/h, lug. rack, \$2,750. 213-542-3473. A

Chevrolet, 1957 Sport Cpe., p/s, p/b, 8-cyl., \$125. 714-774-9920. A

MG, 1965 1100, 2-dr., \$500. 213-644-2666. A

Station Wagon, 1967 Plymouth Fury III, 4-dr., 2-seat, fact. air, auto. trans., p/s, pwr. d/brakes, \$2,100. 714-544-7349. A

Station Wagon, 1963 Chevrolet, 6-pass., p/b, p/s, \$825. 213-941-1909. A

Thunderbird, 1955, new interior, \$1,095. 213-695-1687. A

Triumph, 1969 Spitfire convt., 5,000 mi., \$2,400. 213-670-3733. A

Volkswagen, 1964, radio, \$1,050. 213-860-5767. A

Oldsmobile, 1963 Cutlass, 2-dr., auto. trans., r/h, console, \$625. 714-827-5636. A

Datsun, 1968 PL510 4-dr. sedan, r/h, 23,000 mi., \$1,450. 213-375-4988. A

Ranchero, 1957, '63 eng. & trans., 352 cu. in., completely rebilt., d/brakes, \$750. 213-644-9394. A

Corvette, 1967 cpe., 427 eng., headers, mag. whls., \$3,250. 213-370-0400. A

Thunderbird, 1960, 352 cu. in., p/s, p/b, \$175. 213-675-6978 before 3 p.m. A

Triumph, 1966 Spitfire Mk. II, wire whls., new top, \$1,200. 213-756-7041. A

Ambassador, 1967, htr., air, d/brakes, stereo, \$1,850. 213-329-4576. A

Corvette, 1966 convt., 427 cu. in., 4-spd., AM-FM radio, \$2,700. 213-341-6813. A

Volkswagen, 1966 fastback, radial tires, sun-roof, \$1,075. 805-482-0122. A

Triumph, 1964 Spitfire, 2-tops, radial tires, extras, \$975. 213-677-6307. A

Fiat, 1969 Spider, \$1,850. 213-379-0638. A

Ford, 1963 Galaxie XL-500, 2-dr., auto., \$600. 213-677-6375. A

Ford, 1961 convt., r/h, new auto. trans., 352 cc eng., \$300. 213-324-9769. A

Chevrolet, 1966 Caprice, 327, air, r/h, 4-dr., h/top, p/b, p/s, \$1,525. 213-375-4593. A

Chevrolet, 1959, 4-dr., 6-cyl., needs trans., \$50. 213-676-8456. A

Cadillac, 1964 coupe de ville, full power, air, 53,000 mi., \$1,595. 213-927-6763. A

Rambler, 1968, 2-dr., auto. trans., 19,000 mi., \$1,500. 213-671-9669. A

Volkswagen, 1968 sedan, stick shift, fact. air, \$1,795. 213-324-8747. A

Buick, 1964 Riviera, 2-dr. h/top, min. bid, \$985. Credit Union ext. 1117. A

Ford, 1930 A Deluxe, 4-dr., sedan, original pattern & paint, 12 V. elec., Hydro. brakes, \$950. 213-632-6150. A

Station Wagon, 1967 Volkswagen squareback, radio, \$1,750. 213-430-7388. A

Pontiac, 1966 GTO, h/top, fact. air, p/b, p/s, many extras, \$1,895. 213-445-3009. A

Chevrolet, 1956, 2-dr., V-8, auto. trans., r/h, \$275. 213-379-4519. A

Ford, 1956, 4-dr., V-8, auto. trans., \$95. 213-672-6188. A

Chevrolet, 1956, 4-dr., htr., 6 cyl., o/drive, Muntz stereo, mag wheels, \$225. 213-534-1696. A

Volkswagen, 1965, \$950. 213-532-7652. A

Dune Buggy, Mini-T body, Corvair eng. & trans., \$1,650. 714-962-4230. A

Ford, 1963 Fairlane 500, 2-dr. spt. cpe., V-8 260, auto. trans., p/s, a/c, r/h, \$795. 213-378-5175. A

Automobiles For Sale

Truck, 1966 Ford F-500, 2-ton, V-8, 4-spd. trans., 2-spd. rear axle, r/h, \$2,495. 213-378-6080. A

Continental, 1967, 4-dr. sedan, full power, air, \$3,350. 213-691-8458. A

Dune Buggy, 1969 Myers Manx, fiberglass, chrome o/side whls., tow bar, \$1,895. 213-377-6654. A

Fiat, 1969 Spider convt., min. bid., \$2,000. Credit Union, ext. 1117. A

Rambler, 1964 American, 4-dr. sedan, \$600. 213-391-7781. A

Pontiac, 1967 Catalina, 2-dr., h/top, stereo tape, p/s, p/b, auto., r/h, \$1,595. 213-865-3494. A

Valiant, 1962 Signet 200, 225 cu. in., 6 cyl., stick shift, r/h, \$400. 213-532-4295. A

Pickup, 1965 Chevrolet Fleetline, 6-cyl., hvy. duty springs, r/h, \$1,250. 213-671-6240. A

MGB, 1967 GT, wire whls., 23,000 mi., \$2,200. 714-644-2887, 213-329-2926. A

Buick, 1962 Skylark 2-dr. h/top, a/c, p/s, \$795. 213-346-6675. A

Cobra, 1967 GT 500, \$2,700. 213-644-2211. A

Station Wagon, 1961 Falcon, 4-dr. deluxe, auto., r/h, \$325. 213-325-7705. A

Metropolitan, 1964, \$150. 213-830-5284. A

Station Wagon, 1965 Rambler 770, 6-cyl., stick trans. w/overdrive, \$875. 213-833-4811. A

Opel, 1969 Sp. Rallye, 4-spd., under warranty, \$1,995. 213-675-1959. A

Chevrolet, 1969 SS 396, 350 h.p., 4-spd., p/s, p/b, 4:11 posi., many extras, \$3,200. 213-545-2180. A

Cadillac, 1961 Cpe. de Ville, full power, a/c, \$699. 213-887-7766. A

Buick, 1961 Invicta, auto., p/s, p/b, a/c, \$450. 213-644-1595. A

Chevrolet, 1967 Camaro, auto., 327 eng., \$1,900. 213-542-2880. A

Station Wagon, 1966 Ford Country sedan, 9-pass., fact. air, p/s, pwr. d/brakes, 390 eng., auto. trans., \$1,850. 714-846-1858. A

Sedan, 1930 2-dr., Chev. eng., Corvette rear end, Ansen sprints, \$1,200. 213-672-7683. A

Household Items For Sale

Washer-Dryer comb., Lady Kenmore, elec., 2½ yrs. old, \$185. 213-679-5243. B

Couch & chair, \$45. 213-676-0573. B

Desk, office size, steel, beige, swivel chair, misc. access., \$140. 714-772-6612. B

Dresser, French provincial, 3 drwrs., white w/gold trim, \$25. 213-371-8695. B

Range, Thermador elec., 30", white, \$50. 213-675-5946. B

Dryer, elec., 220 V., Westinghouse, front opening, \$25. 213-346-3751. B

Gas Log, 3-element, 34,500 b.t.u., flexible metal hose, \$22.50. 213-541-3068. B

End Tables, 2, walnut, \$20 ea. 213-541-3000. B

Desk, kidney shape, dk., mahogany, 19x29x46, 9-dwrs., \$35. 213-755-3043. B

Dining Room Set, pecan, octagonal, leaf, 3 high back side chairs, 1 high back arm chair, 6 mos. old, \$225. 213-451-3520. B

Sectional, 3-pc. circular, turquoise, \$125. 213-371-5037. B

Table, maple, & 4 chairs, 2 ext. leaves, \$25. 213-679-8583. B

Refrigerator, coppertone, 9 cu. ft., est. 1 yr. old Norge, \$100. 213-672-4397. B

Hutch, maple, Early American style, deep shelves & drwrs., \$100. 213-320-1633. B

Rugs, 2, wool, braided, oval, multicolored, 9x12, \$35 ea. 213-379-2068. B

Silverware, Century sterling, 18 pl. settings, still in fact. wrapping, \$18 place setting, 213-372-8003. B

Dining Room Chairs, various other items, \$5 ea. 213-755-7521. B

Chaise Lounge, 10' Scandinavian walnut trim, cut 90° angle w/10 o/stuffed pillows & 5' walnut base w/unattached fern green pillows, \$350. 213-321-2646. B

Range, gas, 30", Signature, never used, \$75. Box 2101. B

Washer & dryer, gas, Gibson Deluxe, avocado, still in crates, many settings, \$400. 213-322-0884. B

Roll-A-Way-Bed, 30" w/mattress, \$45. Box 2102. B

Fireplace Set, 7-pc. brass, Colonial design, \$25. Box 2103. B

Club Chairs, 2 custom, \$20 ea. 213-371-9586. B

Rug Padding, waffle-type, approx. 90 sq. yds., 50¢ sq. yd. Box 2104. B

Bathroom Sink, w/water faucets & medicine cabinet w/mirror, \$10. 213-423-1363. B

Martini Set, pitcher & 8 glasses, red & white trim, \$7.50. 213-474-5726. B

Heater, Arvin electric, thermostat, 3-position control, \$15. 213-326-9107. B

Bed, dble., firm, w/frame, linen & quilted bedspread, 2 yrs. old, \$45. 213-645-7972. B

Sofa, Chinese chippendale, off-white, \$50. 213-670-2819. B

Water Softener, Bruner auto., \$75. 714-523-2495. B

Miscellaneous For Sale

Bicycle, Sears, 10-spd. Derailleur, \$25. 213-377-5853. C

Condominium, 4-bdrm., 2½ baths, 2-story, cpts., dps., bltins, air cond., screened-in lanai, in adult area w/pool & clubhouse, take second for dn. to equity of \$7,000, \$250 mo. lease or \$24,950. 714-837-6067. C

TV, Early American maple, 1967 21" Motorola, b&w console, \$47. 213-677-2797. C

Trailer, 1959 15' Terry, awning, \$500. 213-644-5180. C

Miscellaneous For Sale

Golf Clubs, full set of Wilson registered irons w/putter, wedge, bag & folding cart, \$75. 714-638-4363. C

Radio, & 4-spd. record player, Craftsman AM-FM w/AFM control, G.E. 1201 spkr., in cherry walnut cabinets, \$50. 213-675-2514. C

Typewriter, elec., IBM standard, \$50. 213-457-9186. C

Amplifier, hi-fi-stereo, 200W., & stereo components, \$95. 213-644-2809. C

Travel Trailer, 1969 22' Alpha, self-contained, fully equipped, \$3,900. 213-428-5629. C

Lot, Hesperia, 180'x229', view, paved street, \$3,500. 213-377-6352. C

Communications Receiver, Hallicrafters SX-130 w/spkr., \$120. 213-375-8834. C

Cat, spayed female Persian, tortoise color, 2 yrs. old, to good home only, food & equip., \$10. 213-375-9397. C

Train Set Layout, H.O., transformer, table top, track, houses, \$100. 213-756-3025. C

Drum Set, complete Ludwig Super Classic, 4 drums, 4 cymbals, stool, stands & sticks, \$475. 213-696-3467. C

Clothing, boy's size 14-16, \$50 or sell sep. 213-882-0761. C

Deer Rifle, 8 mm Mauser, sporterized, Lyman peep sight, sling, ammo, \$45. 714-524-1531. C

Cabin Cruiser, 30' Chris Craft, \$7,500. 213-676-8331. C

Travel Trailer, 1960, 18½' Oasis, self-contained, awning, \$1,495. 213-370-0250. C

Slide Copier, Aimes-Hershey, 82A filter, \$40. 213-675-3892. C

Drill Press, ½ h.p. Century motor on roll-away table, \$20. 213-370-7600. C

Dog, AKC, German shepherd, black & silver, w/papers, needs fenced yd. w/children, all shots, \$150. 213-425-3786. C

Camper, 1968 VW, fully equipped, incl. cabana, \$2,950. 213-867-1933. C

Cemetery Lot, Parkview, Inglewood Park, \$500. 213-753-7484. C

Radio, portable, Nordemende Globetraveler III, AM-FM-LW-SW, \$150. 213-545-6719. C

Camper Jacks, stands to store camper on, \$50. 714-772-2898. C

Bicycle, boy's 24" Schwinn, 10-spd. Derailleur, \$50. 213-377-5897. C

Piano, \$495. 213-833-4088, 213-835-3912. C

Acreage, for subdividing, level land, 5 acres, \$750 dn., \$75 mo., \$7,500. 714-846-2244, 714-846-2627. C

House, 3-bdrm., 2½ baths, Parksite, f/place, assume G.I. loan \$500, \$28,000. 213-943-6278. C

Billiard Table, 6½', slate top, U.S. Billiards, que-sticks & access., \$325. 213-327-3737. C

Reloading Press, Lyman Tru-Line Jr. turret, 2 sets dies, priming punches, shell holders for 38 Spec. & 220 Swift, \$22. 805-495-7550. C

TV Camera, transmitter, many comp. parts, \$150. 213-644-5332. C

Socket Sets, ¼" dr. 29-pc., ¾" dr., 14-pc., ½" U.S. & 10-32 mm metric, \$45 or sell sep. 213-644-7870. C

Amplifier, for elec. guitar, 2 jacks, 2 straps, \$65. 213-676-3379. C

Motorcycle, 1967 Yamaha, 100 cc, Trail-master, \$220. 213-370-7130. C

Boat, 14' runabout, glass o/wood, 25 h.p. Evinrude, elec. starter, trailer & extra tire, \$375. 213-867-5769. C

Theater Organ, Conn, w/fun master, 2 61-note independent keyboards, 25 note pedal board, 2-sep. bltin spkr. sys., walnut finish, \$2,380. 213-679-5364. C

Juke Box, Seeburg multi-channel, 160 45 rpm capacity, \$650. 213-329-7659. C

House, 3-bdrm., on 50' x 120' lot, fenced yd., landscaped, 20'x38' patio, gar., 10 min. from Northrop Hawthorne, \$26,500. 213-676-3509. C

Wet Suit, Dive 'N Surf, small size, \$12. 213-374-8608. C

Golf Clubs, 3 woods, 9 irons, bag & cart, 1½ yrs. old, \$230. 213-370-8365. C

Rear Seat, for 1969 Chev. Sportvan, w/seat belts, \$75. 213-534-5350. C

Acreage, 5 acres, Antelope Valley, \$59 dn., \$59 mo., no int., \$5,900. 213-378-1026. C

Motorcycle, 1963 Yamaha, 250 cc 5-spd., extras, \$300. 213-329-9887. C

Rancho, 1 acre plus, Apple Valley, fully improved, zoned for horse corral, easy terms, \$7,950. 213-325-8211. C

Bicycle, Sting Ray, h/brakes, 3-spd., 20" whls., \$25. 213-397-3504. C

Recorder, Roberts 90-C4, 4-track stereo tape, 2 mikes, preamp., amp. plays 7½ & 3¼ spd., \$100. 213-830-8525. C

Drum, set, bass, 2 toms, snares, bongos, \$100. 213-423-5956. C

Pups, German shepherd, 7 wks. old, black & tan, females, AKC, pedigree, \$80. 805-495-1241. C

Travel Trailer, 15', elec. brakes, sleeps 5, stove, ice box, \$475. 213-677-7382. C

Guitar, Rickenbacher, hollow body, 3 dual pickups, \$295. 213-474-5682. C

Lot, Lake Havasu City, R-1, view, 1 mile from lake, \$5,000. 714-879-5352. C

Chord Organ, Thomas, w/bench, blonde, \$195. 805-495-7163. C

Pistol, semi-auto., will shoot 9 mm or .38 cal., \$45. 213-962-2867. C

Magazines, model airplane, 1955-1965, 50 misc. issues, 20¢ ea. or \$7.50. 213-377-6435. C

Pistol, Luger, 7.65 mm, 30 cal., \$100. 213-375-4312. C

Camera, Patrika Nova-1B, 55 & 135 lenses, bltin lightmeter, SLR, case, other access., \$90. 213-327-4267. C

Miscellaneous For Sale

Trumpet, w/case, \$75. 213-329-1279. C

House, 3-bdrm., den, cpts., sep. dining rm., patio, dble. gar., 2 baths, \$28,000. 213-635-3076. C

Rifle, 22 auto. Colteer, C-4 scope, case, \$55. 213-370-4475. C

Pool Table, Billiards, 4' x 8' Deluxe model, slate bed, balls, sticks, other attachments, 10 mos. old, \$500. 213-679-0710. C

Acreage, improved 7½ acres, lge. trees, 2 excel. wells produce 50 gal. a min., 5,000 gal. stor. tank, \$20,000. Box 2105. C

Travel Trailer, 1967 Kenskill, completely self-contained, \$2,300. 213-370-7960. C

Revolver, 38 cal., western-type, \$60. Box 2106. C

Motorcycle, 1968 Mojave Italian Benelli, 250 cc, 1,700 mi., \$275. 213-789-5791. C

Trailer, 1967 15½' Field & Stream, sleeps 6, 75 lb. ice box, hvy. 8 x 8 canvas awning w/ext. poles, \$895. 213-326-0513. C

Home, Laguna Bch., 4-bdrm., 2 baths, formal living & dining rms., f/place, cpts., dps., insulated, ocean view, lease or \$34,500. Box 2107. C

Piano, spinet, Gulbransen, \$395. 213-941-6953. C

Valve Covers, Offenhauser, for Chev. V-8, \$20. 714-838-7161. C

Typing Table & chair, metal, \$25. Box 2108. C

Trailer, 20' Arrowhead, sleeps 4, toilet & shower, \$1,095. 213-758-0582. C

Engine, Triumph GT-6, 2,000 cc, complete less carbs., \$300. 213-398-8688. C

Skis, Head deep powder, 6'5", w/out bindings, \$75. 213-823-1788. C

Dog, AKC Labrador retriever, partially trained birdy, \$50. 213-881-2604. C

Pinball Machine, \$165. 213-372-1386. C

Bicycle, w/training wheels, for boy or girl, 16", \$15. 213-327-8050. C

Table, metal, light, 20" x 24", \$25. Box 2109. C

Wiglet, blonde, fall & cascade, 3 styrofoam heads, carrying case, \$25. 213-677-5314. C

Cots, 2, metal, w/hinges & folding legs, \$15. 213-839-3279. C

Juke Box, Seeburg 100, \$120. 213-644-6733. C

Shampoo Tray, cast iron, porcelain coated, pastel green, complete w/chrome plumbing fittings incl. spray attachment, \$25. 213-676-9889. C

Piano, baby grand, 4'8", walnut finish, \$450. 213-371-4166. C

Home, 6-bdrm., fam. rm., 18' x 36' heated rm., 1/3 acre, 2,500 sq. ft., cpts., dps., indoor b-b-q, dining rm., 3½ baths, Conejo Hills, \$47,900. 805-495-0507. C

Lathe, Craftsman quick change, 16 spds., 24" centers, 12¼" swing, adj. bench/cabinet attachments, \$300. 213-295-9135. C

Transmission, 4-spd. Jaguar, mated to Chev. bellhousing, \$75. 714-842-5961. C

House, 3-bdrm., 2 baths, den, sep. dining rm., f/places, dble. gar., tri-level, sep. work-shp, \$32,000. 213-674-5658. C

TV, 21" b&w RCA console, \$25. 213-672-2370. C

Pups, German shepherd, 2 mos. old, female, \$25. Box 2110. C

Drill Press, 6" jointer, 6" thickness planer, lathe, other access., \$325. 213-831-5304. C

TV, 21" Zenith console, w/remote control, \$35. 213-846-5589. C

Wheels, 5 5" w/trims & baby half moons, \$20. 213-375-0449. C

Pups, poodle, male, black, AKC reg., shots, champ. b/ground, \$100. 714-774-3815. C

Wig, long, med. brown, human hair, \$50. 213-644-9430. C

Own-your-own-apt., 2-bdrm., 2 baths, all elec., dps., cpts., patio, pool, party rm., hobby shop, enc. 2-car gar., adults, \$24,000. 213-327-8047. C

Wanted to Buy

Camping Trailer, tent-type to sleep 6, Starcraft or Apache, reasonably priced. 213-378-1671. D

Floor Jack, hydraulic, on wheels, 4-ton capacity or more, auto service style. 213-861-6404. D

Wash Pitcher & basin, old fashioned, reasonable & steel multi-drawer tool chest. 213-676-3050. D

Moto-Tool, Dremel, w/access., in good condition or comparable high-speed flexible shaft outfit. 213-679-1631. D

Player Piano. 213-375-8682. D

For Trade

Rifle, Remington auto., model 742, .308 cal., trade for 7 mm rifle or .357 Colt Python. 213-322-5136. E

(Free) To Be Given Away

Pups. 213-375-4376. F

Rides and Riders

Rides Wanted

7:30 a.m. — 4:15 p.m.

Century Blvd. & Felton Ave., or Century Off-ramp from San Diego Frwy., Inglewood. Will be happy to pay for gas. Penny L. Prouty, Aircraft ext. 4627, 213-677-3689.

8 a.m. — 4:45 p.m.

Sepulveda Blvd. & Imperial Hwy., El Segundo. Need ride to work desperately. Maggie Mackey, Aircraft ext. 2500, 213-322-0367.

Free (To Be Given Away)

Kitten, 2 mos. old, tabby, to good home, house trained. 213-376-8579. F

Cat, black Siamese, spayed & all shots, 3 yrs. old. 213-379-7716. F

Poodle, black, 1 yr. old, miniature. 213-542-3006. F

Rentals Offered

House, 2-bdrm., close to Northrop, Torrance, \$160 mo. 213-370-1360. G

Bachelor Apt, furn., utils. incl., \$80. 213-324-9780. G

House, 2-bdrm., lease, f/place, cpts., dps



BRONZE STAR
Captain Gapik, right, receives award from Colonel Tobey.

Captain Gapik Decorated For Bravery in Vietnam

Captain Walter P. Gapik, son of Electro-Mechanical Division's W. H. "Wally" Gapik, has been awarded the Bronze Star medal by the U.S. Army.

The award, presented recently, in Karlsruhe, Germany, where

Captain Gapik is now stationed, was for "valorous performance in his former duty as an Army pilot with the 199th Aviation Reconnaissance Company in Vietnam," according to the official citation accompanying the award.

Captain Gapik's new assignment is commander, Headquarters and Headquarters Company, Signal Support Group.

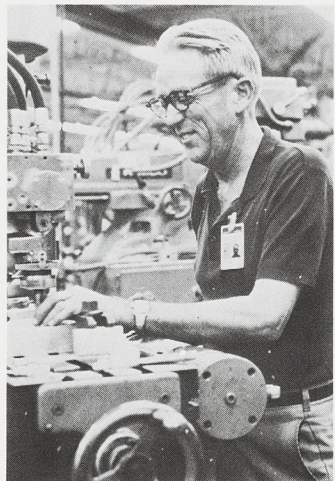
Captain Gapik's father, Wally, is a quality engineer with the Stereomatic Comparison Viewer program at Anaheim.

J. M. Canchola Named Manager Of Teague Group

J. M. Canchola has been appointed to succeed William G. Collins as manager of Walter Dorwin Teague Associates, engineering consultants to the U.S. Navy for the Northrop-built Polaris and Poseidon MTRE (Missile Test and Readiness Equipment) programs. Mr. Collins recently resigned to join the U.S. Navy's Special Projects Office in Washington.

"When Bill Collins left he was highly appreciative of the cooperation given him by the Electro-Mechanical Division's people," Mr. Canchola said. "I am looking forward to working with the people from the Navy, Northrop, Lockheed Missile Systems Company and Defense Contract Administration Services in the same spirit as has prevailed in the past. This attitude has been a most important factor in permitting us all to do our best for the Navy's Fleet Ballistic Missile program."

On The Job



WILLIAM C. GATEWOOD, general machinist, has been with Northrop for 11 years. According to Supervisor Art Bowser, Will is the man he calls on for special work like special templates and other precision work. Such precision work adds to the effectiveness of Northrop programs.

Bob Kirkeby Helps Crew Famous Ketch

Bob Kirkeby, 17-year-old son of Electro - Mechanical Division's Jack Kirkeby, helped crew a famous racing ketch from Hawaii to the United States, spending 20 days under sail this summer.

The sailing craft is the 53-foot Starling III which participated earlier in the Trans-Pac yacht race from the West Coast to Hawaii. Often owners of these racing craft cannot spend the time to sail their boats back. They arrange for crews of young people to fly to Hawaii and bring the yachts back home.

Scouting Helps

Bob was selected for the crew because of his Sea Scout experience. He has been a member of the Sea Scouts for four years and has become a seasoned deep water sailor.

He visited Oahu, Maui and Kauai Islands during the trip and participated in a week of boat racing before making the 20-day sail home in the Starling.

Earlier he was a member of the Sea Scout group that crewed the Carthage on a trip to Catalina. The Carthage is the square-rigged, old-time whaling ship refurbished for use in the movie, "Hawaii." The Catalina voyage was a father - son trip. Jack Kirkeby accompanied his son.



SHOOTING THE SUN
Bob Kirkeby (foreground) helps navigate ketch.

AID-NORAID Campaign Will End on Friday

The current AID - NORAID campaign will continue through Friday at the Electro-Mechanical Division, according to Harry Belcher, division campaign coordinator.

This is the 15th year that Northrop personnel have been offered the opportunity to authorize weekly payroll deductions to support charitable, health and welfare organizations for the

coming year.

"If you already have a payroll deduction authorization, then it will not be necessary for you to sign another," Mr. Belcher said.

"However, if you have made a designation to a specific charity or organization, then we must have a redesignation if the organization of your choice is to continue to receive your gift. This specific designation option is a unique feature of AID affiliation."

Amounts authorized go to support health, welfare and charitable organizations.

Huntsville Men Assist AIAA

Two Northrop-Huntsville employees were featured in the AIAA 6th Annual Meeting and Technical Display in Anaheim, Oct. 20-24.

David M. Hammock, director, Systems section, served as chairman of a session on Unmanned Spacecraft Missions and Systems. Pat R. Odom, general supervisor, Mission Analysis branch, presented a paper on "Automated Mars Surface Sample Return Systems Concepts."

Mr. Hammock has made significant contributions to Northrop's Multiple Artillery Rocket System (MARS), and is currently project engineer on the project. Mr. Odom is project engineer for the Mars Surface Sample Return (MSSR) project currently in progress for NASA.

NRC Calendar

For information on NRC activities call Personnel Activities, ext. 244 or contact club commissioner. Meetings are held at the NRC Clubhouse, 1834 Valencia, Fullerton, unless noted.

ART—Meets every Wednesday at 7:30 p.m. Models on alternate weeks. Non-professionals welcome. Ed Mosher, ext. 1184.

BASKETBALL—Now forming industrial league. Duane Baptiste, ext. 402.

BIBLE—Mondays, Wednesdays and Fridays at Orangethorpe. Tuesdays and Thursdays at Page Court. Marvin Wiebe, ext. 646.

BRIDGE—Noontime tournaments under way. Jack Kirkeby, ext. 1207.

CAMERA—Meets on Tuesdays. Instruction available for those wanting to learn to process their own film. Harry Dent, ext. 607.

POCKET BILLIARDS—Plays every Wednesday at Big John's. Earl Jackson, ext. 1249.

TABLE TENNIS—Everyday at noon cafeteria area. Bring your own paddle. Jack Flannagan, ext. 674.

EIGHT-BALLERS GIVEN TROPHIES



LATEST WINNERS in the continuing 8-Ball Billiards League display trophies just presented to them by Club Commissioner Earl Jackson, left. Others are Jim Melatti, Bill Ishmael, Woody Woodsmall, Rene LaFlamme, Bill Christian, and Walt Petrich. Messrs. Woodsmall and Christian took first. Mr. Petrich and Mr. LaFlamme were second with Mr. Melatti and Mr. Christian third.

ON ROAD TO BULLFROG

Adventure Found Beyond Wahweap

There is no trip in the world like the one from Wahweap to Bullfrog—that is, if you don't mind being blown off an island by 40-mile winds, dodging a sidewinder rattlesnake, and grieving because there are no golf driving ranges in this remote mountain area.

At least that is the report from George Baldwin, Electro-Mechanical Division engineer, who just returned from a boat trip with his family up the remote reaches of Lake Powell at the upper end of the Grand Canyon. The lake was formed in Utah and portions of Arizona by Eisenhower Dam on the Colorado River.

Mr. Baldwin, his wife, Julie, and children, Becky 14, Danny 13, and Dennis 10, made the trip 100 miles up the lake to Bullfrog Marina in Utah in their new boat "Kan-i-go," an 18-foot in-board outboard, after towing the boat the 560 miles from Califor-

nia to the Wahweap Marina near Page, Ariz. at the south end of the lake.

Roughing It

They had to camp where they could. Maps of the area for campsites are not too efficient because the lake is gradually filling up. It has risen approximately 40 feet in the last two years. Old campsites have been covered. Visitors have to find new ones. This can be difficult for in places the canyon walls are tall and sheer, cutting off light and the nights are pitch black. At one place the Baldwins camped on a sandbar island. Forty mile winds and rain funneling through the narrow openings between the canyon walls blew them off the island. They had to get back in the boat to ride out the storm. At another point Mrs. Baldwin had her way disputed by a sidewinder.

On the plus side, the area is a miniature Grand Canyon with

multicolored walls that change colors with shifting sunlight. The water is about 75 degrees and ideal for swimming. Fish are so thick that a piece of bread dropped on the water will bring a swarm of blue gill. Although one of the most popular boating areas in the Southwest, it appears to be isolated because the boats are so widely scattered over the vast area.

The magnificent scenery makes this one of the finest trips one can take, George reports. It must be made by boat because there are no roads. The storms and rattlesnakes and fine sand that get into everything only add zest to the trip. However, all is not perfect. George, who is commissioner of the NRC Electro-Mechanical Division Golf Club, reports sadly that there isn't a single golf course or driving range anywhere between Wahweap and Bullfrog.

NORTHROP NEWS

ELECTRO-MECHANICAL DIVISION EDITION

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MEMBER OF THE TEAM

Frank W. Lynch, vice president and general manager, Electro-Mechanical Division, receives the National Alliance of Businessmen's JOBS plaque from S. F. Eyestone, president, North American Rockwell's Autonetics Division. At left is Paul Faranda, manager, Industrial Relations, Electro-Mechanical Division. Photo by John Branzetti.

Division Receives Plaque For Aiding Unemployables

The Electro-Mechanical Division has received a plaque for its contributions to the National Alliance of Businessmen's drive to provide jobs for hard core unemployed persons in Orange County.

Big Savings Made With Minor Shim

An idea for a minor shim added to stiffeners used on the center line pylon of the Northrop F-5 salvaged 400 scrap parts that were headed for discard and brought a \$340 suggestion award to John W. Kaster, Electro-Mechanical Division senior mechanic, according to Keith Hughes, F-5/T-38 supervisor.

This is the second time Mr. Kaster's ideas have brought a cash award. Six months ago he received \$100 for an idea that cut two hours from the time needed to wire an F-5 pylon. He is a 10-year Northrop veteran who worked with launchers and loaders before moving to the F-5/T-38 program. He said he got his idea for the money-saving shim "because it was needed."



MINOR SHIM BRINGS MAJOR AWARD
John W. Kaster, left, receives check from Keith Hughes.

GIANT STEP Takes Big Stride, First Prizes Are Presented

Cost-reducing Operation GIANT STEP took off with a big stride at the Electro-Mechanical Division with the first week's operation bringing special awards to 10 employees.

GIANT STEP is a special program which supplements the regular Northrop Suggestion Award Program. It began here on Nov. 10 and will continue through Dec. 12. Originally designed to cut costs on the Boeing 747 Program, GIANT STEP has been expanded by the division to seek additional savings in all phases of operations.

Those receiving special prizes for suggestions submitted during the first week's operations are:

Jon McFadden, Plant Engineering; E. M. Schulz, Plant Engineering; Herb Morin, Purchasing; Richard Kumerow, Production Control; Dick Miller, 747 Production; Robert Taylor, Plant Engineering; Mary Jo Butler, Production; H. E. Hill, Production;

Merton Martin, Quality Control; and James Ricketts, II, Production.

Frank W. Lynch, vice president and general manager, said he was gratified by employee response during the first week of Operation GIANT STEP. "The importance of this program cannot be overstated," Mr. Lynch said. "I sincerely hope that all of our employees will look for and submit cost reduction ideas."

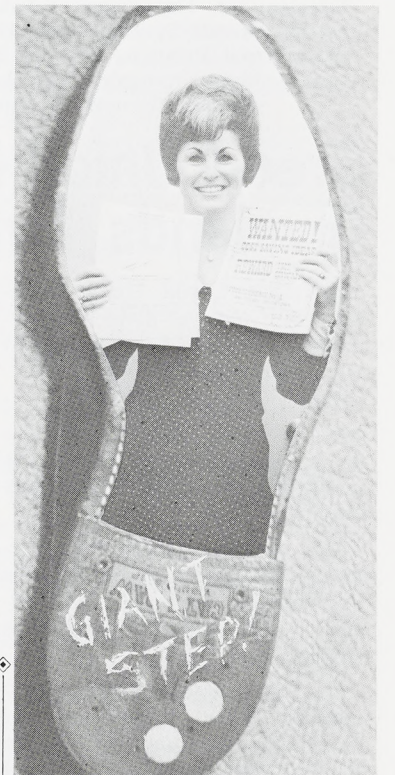
Charles Hargrove, GIANT STEP operations committee chairman, emphasized that these prizes are in addition to any award the idea may be eligible for under the regular Suggestion Award Program.

No Limits

"Response to GIANT STEP during its kickoff week has been great," Mr. Hargrove said. "However, we can't get too many suggestions. If you fill the suggestion boxes, we'll be pleased. If they run over, we'll be even more

pleased. Keep them coming."

Mr. Hargrove went on to add that there is no limitation on the number of suggestions one can (See GIANT STEP, page 6)



STEP ON IT!

Eleanor Scarsdale reminds us that GIANT STEP is now in its second week. All you have to do to step out in the race for the weekly prizes is to grab a suggestion award blank and put down your ideas for cutting costs.

HOLIDAY

Electro-Mechanical Division will suspend operations in observance of Thanksgiving Day, Nov. 27.

Regular work shifts will resume Friday, Nov. 28.

TEAMS Demonstrated For Key Navy Officials

Three U.S. Navy officials made a special visit to the Electro-Mechanical Division to review Northrop's Test Evaluation and Monitoring System (TEAMS).

They were Captain R. E. Wilson, assistant for Ship Electronic Warfare Systems Readiness; his assistant, Lt. Commander G. P. Barbour; and Lt. Commander A. Scott Mobley, head of the Technical Support branch.

Captain Wilson's branch sponsors TEAMS and other electronic equipments after they have been formally approved for fleet acceptance and operation.

The visit came at a time when

Northrop is proposing a program to expand TEAMS into guided missile ships as well as proposing automatic test equipment for new construction.

Mel Ventura, Marketing manager for Automation Systems, said the Fleet's awareness of TEAMS and the systems expansion capability has given it the recognition TEAMS deserves. It is an effective maintenance system and can be applied to a broad range of systems in a number of different classes of ships.

Anniversaries Celebrated in Double Party

A 1943 blind date climaxed in a silver wedding anniversary for the Electro-Mechanical Division's Grace Heath Nov. 15.

The actual anniversary was Nov. 5, but the celebration was delayed to split the difference between her wedding date and the third anniversary of her son, Greg, on Nov. 25 so both families can celebrate together.

Mrs. Heath is manager, Personnel Records, and her husband, Bud, is a former Northrop employee who now manages the Seaside Service Station near the division's Anaheim location.

Mrs. Heath and her daughter-in-law, Janet, also a former Northrop employee, will have one subject in common to talk about at the joint observation. Both were married in the same wedding dress, but 22 years apart.



WATCHING TEAMS DEMONSTRATION

Captain R. E. Wilson, Lt. Commander G. P. Barbour and Lt. Commander A. Scott Mobley watch M. C. Ventura (left) demonstrate TEAMS.

Labor Department Honor



MORRIS E. SKINNER, left, regional director, Apprenticeship and Training, U.S. Department of Labor, presents Certificate of Cooperation to Aircraft Division's John Fink, left center, as John Richardson of Industrial Relations and Bill Burson, Department of Labor, look on. Certificate recognized Northrop's aid in conducting technical programs for overseas visitors studying in this country.

Credit Union Plans to Pay Dividends Twice Yearly

Northrop Credit Union members will receive dividend payments twice each year instead of only once beginning in 1970.

The Credit Union's board of directors approved the plan to pay a semi-annual dividend recently, Chairman Bill Schramm reports.

Mr. Schramm does not foresee any effects on the annual rate of dividend paid members. However, it will result in advantages to members.

For example, those who must withdraw funds before the end of a full year may be able to earn interest for at least half of that year under the semi-annual payment schedule.

And those who leave their funds on deposit for a full year will continue to earn interest for the full year, plus additional interest on the amount paid at mid-year in the form of dividends.

Dividend periods for the Credit Union will now end May 31 and Nov. 30 of each year and be

posted in all accounts in June and January, respectively.

Since 1963 the Northrop Credit Union has paid its members an annual return of six per cent or more. The interest rate has been 6¼ per cent each year since 1965.

Open to Northrop employees in all Corporate office functions, Aircraft, Electronics and Electro-Mechanical Divisions, the Credit Union offers a convenient way to save through weekly payroll deductions. And it continues to offer employees low-cost personal loans as well as loans for new and used automobiles, mobile homes, home improvements, airplanes, first and second trust deeds and even low-cost share loans.

FLOYD DAMMAN NEW STATE AFA OFFICIAL

Floyd Damman, a member of the Aircraft Division Marketing organization, has been named a state vice president of the Air Force Association.

Mr. Damman has just concluded a term as president of the Long Beach AFA Chapter and served as chairman of the AFA State Convention in October.

As state vice president, Mr. Damman will direct the association's over-all activities in Southern California.

Tests Show 747 Will Be Better Airport Neighbor

Extensive tests carried out by The Boeing Company reveal that the new 747 jetliner will be a better "airport" neighbor — it is quieter — than the current family of big jet transports.

Comparisons were made between the 747 equipped with test engines and smaller 707 aircraft now in service. Boeing used a measurement called "perceived noise decibels" (PNdB) which describes the noise heard by a human ear under certain conditions.

They showed that the 747 is 8 to 10 PNdB quieter during landing approach than the 707. Landing noise is reportedly the worst offender around many airports. Takeoff readings show the 747 to be 3 to 5 PNdB quieter. And "sideline" (community noise) levels were found to be 5 PNdB's less with the 747.

Tests were made at the maximum landing and takeoff weights for the aircraft. It is noteworthy that the 747 is more than twice as heavy as the 707 and has engines almost 2½ times as powerful.

FOR ADULT LEADERSHIP

Scouts Give Tanner Order of Merit

The Boy Scouts of America have presented one of their highest adult leadership awards — the Order of Merit — to Northrop's Stuart Tanner.

Recognition came at the annual dinner of the Midland District, Los Angeles Area Council, this month.

Mr. Tanner, a programmer analyst with Northrop Data Processing, has devoted more than two decades to voluntary youth work in the Southland.

He has held just about every adult leader post with the Scouts, from den dad to Explorer Advisor. In addition, he has worked with youth activities sponsored by the Baptist Church, Catholic Youth Organization, American Legion, YMCA and several schools, public and parochial.

Mr. Tanner has taken a special interest in citizenship honors for boys and girls, speech projects and competition, community projects, safety activities, and in helping youngsters to better understand modern computer technology.

Mr. Tanner has helped push his youngsters to the foreground and has seen them win many honors and awards, as individuals and as groups. His present Explorer Post is geared to utilize walkie-talkie and two-way car radios in searching for lost children, handling crowds and administering first aid and special assistance as needed.

Normally soft-spoken, Mr. Tan-

ner comes on strong in defense of the merits and morals of today's youth.

"We read and hear a lot about the small minority who misbehave," he says. "What we really need is someone to tell about the majority, the boys and girls who lead healthy and meaningful lives."

Mr. Tanner has a simple philosophy about youth.

"Young people want adults to be honest with them. You can't fool them. If you treat them square, give them responsibilities and things to do, then advise them as necessary, they will come through every time," he says.

Probably the best indication of the merits of such an approach is evidenced in the fact that few boys who have worked with Stuart Tanner actually drop out of Scouting when they reach 18 or 20 years. Instead, most stay on to help him and others as adult leaders themselves.

The entire Tanner family share Mr. Tanner's interest in Scouting. Mrs. Tanner, Mary, has been active with the Girl Scouts for years. His son, Tom, is an Associate Explorer Advisor. Daughter Susan has reached one of the highest Girl Scout levels. And Kathy, 13, is currently moving up through the Girl Scout ranks.



BOY SCOUTS HONOR NORTHROP MAN
Stuart Tanner, second from left, received Order of Merit.

AIDING YOUTH

Group Teaches Value of Good Education

A Northrop group, working through the Youth Incentive Through Motivation, a state chartered organization, is helping Mexican-American young people to understand the value of education in their future.

Heading the program at Northrop is Richard E. Rosas with assistance from Dave Saldana, Edward Aguilar, Luis Urzua and Mona Elkins.

The Youth Incentive Through Motivation program is an extension of the Vice President's Task Force on Motivation, Mr. Rosas said. "However, we go far beyond the Task Force's activities. Our membership is made up of Mexican-Americans who volunteer their time to work with young people. Our objective is to motivate them to stay in school."

The program began at North American Rockwell and has spread to other aerospace firms in Southern California. Volunteers are primarily technical and professional people. They work with local high schools where there is a large Mexican-American enrollment.

Differences

The program differs from other youth motivation programs in that they do not go from school to school, but continue to work with the same school groups. Mr. Rosas devotes his time to the Artesia High School. Others work with schools in the La Mirada and Norwalk area.

"We have found that the educational level of Mexican-Americans is lower than any other minority group," Mr. Rosas said. "It averages 9.1 years. The national dropout rate in high schools is 16 to 18 per cent. With 15 per cent of our people comprising California population, less than 1 per cent are enrolled in state colleges. Simply because of this low education rate few Mexican-Americans are represented in technical, professional, government and teacher classes."

The Need

He went on to say that the Youth Incentive Through Motivation program is attempting to raise this average. "That is why we are asking professional people of Mexican-American ancestry to volunteer their time to help us," he said. "Such people are living examples of what can be accomplished through education."

Mr. Rosas is a research analyst working in microscopy in the field of metallurgy with the Aircraft Division. His own education was received through initiative in going to night school. Having grown up with the kind of

youth he is trying to help, his experience has been an important factor in influencing the young people he works with. He goes once a week to Artesia High School, working with a group of 20 students. The YITM program consists of person-to-person motivation, tours to colleges and industries and related activities.

"Northrop has been a leader in employing minority groups," Mr. Rosas said. "Youth Incentive Through Motivation does not compete with this program."

Mr. Rosas hopes to recruit from among Northrop employees, especially those of Mexican descent, in pursuit of YITM goals. "We need people who can give time—people who care."

Northrop Men Work Together On New Book

A new book, tentatively titled "Wings for an Arctic Missionary" authored by a former Aircraft Division employee and edited by a present employee, has been accepted for publication next year.

The Reverend John Chambers, industrial chaplain at the Aircraft Division from 1965 until 1969, is the author. Ira E. Chart of Proposal Operations edited the manuscript.

The book chronicles Reverend Chambers, 1954-1964 activities as a flying missionary to Eskimo villages. Mr. Chart served in Alaska as Command Historian for the USAF from 1951 until 1956.

Reverend Chambers is currently interim pastor of the Westwood Presbyterian Church.

NORTHROP NEWSMAKERS

Susan Rapella, daughter of **Harold Rapella**, Aircraft Division, has earned membership in the California Junior College Honor Scholarship Society, Alpha Gamma Sigma. She is a second year student at El Camino College majoring in elementary education.

Jack Moeller, Ventura, discussed "Parawing Technology for Spacecraft Land-Landing" before the Pacific Missile Range Section of the AIAA this week. The meeting took place in the Ventura Division's assembly room.

J. P. Raymond, Northrop Corporate Laboratories, has authored two papers. "Radiation-Inclusive Solid-State Device Model" was presented at the Mathematical Models for Solid State

Devices Symposium this month at the University of Wisconsin. "Bulk Ionization Effects on Electronic Components" was prepared for presentation at the Age Effects on System Survivability, Electronic and Mechanical Components Symposium at the Aerospace Corporation.

R. F. Carmichael, Aircraft Division, was co-author of a paper titled "Investigation of a Noise Problem in the Cockpit of a Fighter Airplane" presented at the Acoustics Society of America meeting in San Diego this month.

A. K. Goswami, Northrop Corporate Laboratories, spoke on "Physics of Glass Semiconductors" at a staff-student physics department meeting at Long Beach State College this month.



NORTHROP ENGINEERS
1st FLYING WING "THE JEEP"

22 SEPT., 1943

NOSTALGIC EMPLOYEES WILL REMEMBER THIS SCENE AS PAUL BONHAM, 10th FROM RIGHT, DID IN RECALLING 30 NORTHROP YEARS.

30 Northrop Years—Paul Bonham Recalls Early Days

Paul Bonham, project supervisor for Boeing 747 fuselage sections 44 and 46, upper, marked 30 years with Northrop on Sunday. The only other 30-year men are Bob Catlin and recently-retired Tom Quayle.

Time has changed a lot of things in the aerospace industry, according to Mr. Bonham.

"In those days," said Mr. Bonham, recalling when he went to work for John K. Northrop's original company in 1936, "engineering was much less of an exact science. Our manuals were limited and our main resources were ingenuity and energy."

And the technical training of 30 years ago could not stack up with educational levels today. Mr. Bonham studied airframe and engine mechanics at the now-defunct Warren School of Aeronautics in Los Angeles for 2½ years.

This Was it

As soon as he designed his first canopy and aft fairings for an aircraft, he knew he wanted to be a designer and not a mechanic. He quit school and joined Northrop. And as times have changed so has engineering knowledge. "Today it is much more exact."

Thirty years ago the hardware and materials were somewhat limited. "There was a lot less to work with and design was a lot simpler."

When Mr. Bonham was designing a magnesium test panel in the Hawthorne Hotel in 1939, the wood shop was in the next room and, "every time the jig-saw started, the floor shook. I had to stop working and hang

onto pieces on my drawing board — otherwise they'd fall on the floor." Their project was the first Flying Wing mockup.

"We had a lot more fun in those days. You could follow a plane through from beginning to end. We saw all the first flights except the ones they trucked to the desert," he recalled.

Many Elements

"In contrast, today you have different people and organizations doing different things. Instead of one group of engineers you have a group for airframe, another for electronics, a third for hydraulics and so on."

"The toughest thing is to integrate these departments and maintain a personal contact."

Mr. Bonham's initial interest in the Flying Wing grew more intense as the company designed several versions of the boomerang-shaped bomber. Although a production contract never came about, Mr. Bonham's most exciting moment with Northrop came when the big bird with a 172-foot wingspan lifted off Hawthorne Field.

Two years after the big Flying Wing's first flight in 1946, Mr. Bonham was named wing section supervisor of the RB-49 in charge of 185 men. In 1953 he went to work on the F-89 Scorpion interceptor.

He subsequently worked on the Snark project, was responsible for the F-101A target launcher structure and mechanism and worked as senior lead engineer on the F-5A/B jet fighters (cockpit and forward fuselage). He began his structures work on the 747 in 1966.

His present office in the 747 mezzanine in Plant Three is the farthest east he has been. Mr. Bonham's first office, after the Hawthorne Hotel, was upstairs in Plant One.

"Back in the early days the area south of Plant One and across Broadway was a dairy," he remembers. "We looked out one day and saw a newborn calf. It was the talk of Engineering." On the north side of the

facility rabbits romped in the grass.

Still reminiscing, "When the war broke out they draped chicken wire all over the buildings and camouflaged them with painted chicken feathers. Anti-aircraft guns were mounted on the buildings and bomb shelters were built."

Today, at 54, Mr. Bonham isn't thinking of retirement. He lives with his wife and two chil-

dren in South Redondo Beach. Another son, who works at McDonnell Douglas, has made him a grandfather twice.

As a veteran of the early days, what was the key ingredient for the success of a young aircraft company? "We loved aircraft," Mr. Bonham answered. "We loved to work with aircraft and had great teamwork. When a company grows, you lose the personal touch."

HE SEES AGAIN

A Walk Down The Hall Led to a Miracle

For the first time in his life Paul J. Perencevic can read for more than a few minutes at a time, can see a football game from the grandstand without the aid of binoculars and "can see

things as they really are" all because he walked into the restroom at the Northrop Aircraft Division.

Mr. Perencevic, a manufacturing engineer, was born with

an eye defect that impairs his central vision. This prevents him from distinguishing visual details.

For 20 years he visited eye specialists who considered him beyond help. Despite his severe handicap, he managed to complete his education and became a school teacher. In June 1967 he was forced to give this up because he could not read for a sufficiently long period to keep up with his students' needs.

He was then employed by Northrop in October 1967. Earlier this year, he happened to pass a fellow worker in the restroom and this man, Ken Peterson, told him how a relative had been rescued from a vision problem similar to Paul's by a revolutionary new type of glasses.

An Invitation

He contacted the developer of the glasses, William Feinbloom of New York, who invited him to come to New York to see if anything could be done. The invitation did not raise his hopes.

"I had learned to adjust," he said. "I felt I was lucky to have even partial sight. However, I never gave up trying to find a solution."

His new glasses were ready in a week. They look like a pair of ordinary spectacles into which is inserted a half-inch long tube of glass. A square prism-type of optical glass is ground on the outside end. The entire arrangement extends out from the regular glasses.

He put them on and faced an eye chart. For the first time in his life he could read clearly all the way to the bottom. His first sensation was surprise.

The unusual glasses increased his visual efficiency from 20% of normal to 80%.

The most important thing that has come out of his life-long search for eyesight, he says, is the realization that one should never give up regardless of how hopeless a situation may seem.

"There is help somewhere if you look long enough and hard enough," he said.

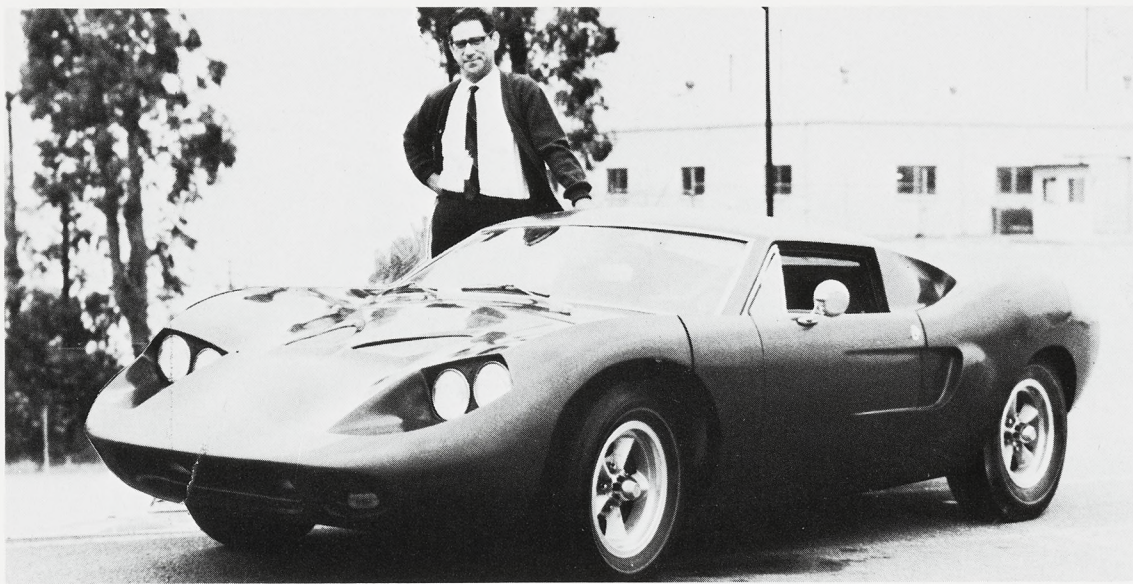


PAUL PERENCEVIC AND GLASSES
Reading, sports events, even driving, are now possible.

Northrop Reliability Experts Gather for Seminar



TAKING PART in a Northrop Corporate Reliability Seminar recently were representatives from major Northrop facilities, subsidiaries and divisions. Stan Church, right, of the Corporate office speaks. Listening in left photo are from left, Phil Sitzer (Aircraft), Abe Osborn (Electronics), Pete Anderson (Electronics), Seth Lewis (Electronics), Bob Kaminski (Aircraft), Bob Rawski (Hallcrafters), John Puerta (Aircraft), Brian Agnew (Aircraft), Andrew Laurenson (Aircraft), Dave Kessler (Electro-Mechanical), Charlie Bernhardt (Aircraft) and Bob Baluta (Northrop Page). In right photo the men are from left, Jim Blom, Bill McDowell and Wendell Harter, all Aircraft, and John MacCarley (Ventura).



ONE YOU WON'T SEE IN THE SHOWROOMS
Del Sherman and his son, David, built this car from scratch.

PIECE BY PIECE

Father and Son Team Build New Car

If Del Sherman and his son, David, don't like their new car, they have only themselves to blame. They built it piece by piece, working in their home garage for two years.

Work began in December 1967 and is now completed except for chrome moulding around the back window. The result, which cost \$2,800 in materials ("we graciously donated our 2,000 hours labor," he said), is often mistaken for a \$10,000 custom-built sports car.

Del, a senior liaison engineer between the Aircraft Division and the Electro-Mechanical Division for the F-5/T-38 program, began building the car as a project to occupy and instruct his son, David, who was then a high school junior.

They began with the suspension system from a wrecked Volkswagen. The engine is a reworked, souped-up 1956 Porsche. The futuristic body they built themselves with a fiberglass kit. The rest of the car is parts from Fiats,

Fords, Corvairs, Mustangs, Pontiacs, Chevrolets, Karmann Ghias, and "a lot of unknowns."

"For two years I crawled around practically every junkyard in Los Angeles seeking parts," Del said. "We couldn't use just any part. It had to be something that would fit. Many of them came from cars that had already been dismantled. So often we never knew what kind of car the part originally came from."

When nothing suitable could be found, Del bought a lathe and David learned to use it. They also bought and learned to use an arc welder.

"We knew nothing about building a car," he said. "Which is fortunate. If I had known anything about it, I would have known too much to start on such a project." Fortunately a lot of car enthusiasts work for Northrop. I got a lot of tips from them that helped us along our way."

In its final form every part was

hand-fitted by the Shermans except for the upholstery. "That we took to a professional," he said. "The only thing remaining to do is to find the right strip of chrome for the back window. That we'll do Christmas and David, who started at Georgia Tech last fall, will drive it back to school after the vacation."

Del does not have any plans to build another car, but would love to do it. "Now that I know all the things we did wrong, I think we could really do a good job next time. There is a lot of satisfaction in building something yourself that is useful, educational and requires a good deal of hard work."

"If anyone has \$3,000 and 2,000 hours of work to spare over the next two years and a kid he wants to keep busy, then I'd recommend this kind of project to him. However, I certainly wouldn't advise anybody to start who is in a hurry."

Finding Indian Artifacts Is Old Hat for Bill Lemke

"He's like a magnet," said one of Bill Lemke's co-workers. "Everytime he goes hunting for Indian relics he always comes back with something."

Mr. Lemke, an engineer in C-5 Engineering Support, has been a collector of Indian artifacts since he was a boy living near the Illinois River in Granville, Ill. This area had previously been the hunting grounds of the Forrest Indians who lived along the many rivers and lakes.

Mr. Lemke explains his unfailing ability to always find something by pointing out that he believes "there's not more than 10 square feet in the United States that an Indian hasn't set foot on at one time or another in history."

"The Indian population in the U.S. never rose above 500,000, but they were here for at least 150,000 years. Many Indians were nomadic, living in small groups and always on the move in search of food," he said.

Although his collection was stolen at one time, Mr. Lemke has built it back up to the point where he now has over 250 perfect arrowheads, several tomahawks, musket-balls, guns, hoes and "boxes and boxes" of pottery.

His two most prized possessions are a set of identical arrowheads, which he believes were made by an Indian who took great pride in his work, and a spearhead about eight inches long.

"The spearhead was used by two different people living in two different ages," Mr. Lemke said. "After it was originally discarded another tribe apparently moved into the same area several hundred years later, found the spearhead, and reconditioned it to use again."

The key to finding Indian arti-

facts is being able to spot the right signs, Mr. Lemke added.

"In California, shell deposits located away from the ocean indicate an old campsite. Other signs are foreign rocks, pieces of pottery and sides of hills."

"The best time to go looking for relics is after a rain or wind storm. This usually causes erosion and uncovers many objects."

Mr. Lemke pointed out that the best spots in the local area for finding relics are in Wilmington and Azusa.



ARROWHEAD TABLE
Coffee table in Bill Lemke's home contains 100 perfect arrowheads. On top of table are other artifacts that Mr. Lemke has collected.

BOOTSTRAP AID

A large scale model of the Northrop T-38 Talon jet trainer was among featured items at the Operation Bootstrap - sponsored Space and Science show held over the past weekend at Will Rogers Park.

Northrop's T-38 is utilized by NASA astronauts to maintain flight proficiency while training for space explorations.

Northrop Club Participates in Archery Meet

Northrop archers M. R. Bachlotte and Morton Mendels took part in the recent California State Flight Archery Meet at Ivanpah Dry Lake, Calif.

Flight archery differs from hunting and target shooting, the more familiar forms of the sport. There are no targets or standard equipment. Scoring is done solely on distance shot.

Mr. Bachlotte, commissioner, NRC Archery Club, placed first in the Broadhead Flight of the Men's Amateur, 50-pound class, shooting 254 yards, one foot and four inches. He also placed fourth in the men's 50-pound Amateur, and sixth in the Unlimited Men's Amateur class.

Mr. Mendels was third in the Broadhead Flight Unlimited class, third in the Broadhead 50-pound class, and fourth in both the men's 65-pound and 80-pound classes.

In addition Mr. Mendels' son, William, 14, shot an arrow 417 yards, 1 foot in the Intermediate Amateur 35-pound class and 507 yards, 9 inches in the junior 50-pound class.

This was the first time that Mr. Bachlotte had participated in this type of archery and the first tournament attended by Mr. Mendels since 1941.

WE ASK THEM—What One Thing Are You Most Thankful for This Year?



Mrs. Conaway

Ardelle Conaway, Data Processing clerk, Electro-Mechanical:

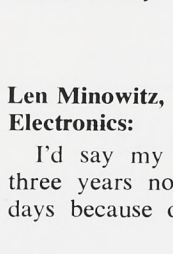
I'm most thankful for my wonderful family and friends—especially at this Thanksgiving time of year.



Mrs. Zrna

Lynda Zrna, senior clerk, Electro-Mechanical:

I am thankful this Thanksgiving for many things, but mostly that tragedy has not hit my family this year as it did last year.



Mr. Minowitz

Len Minowitz, Precision Mechanical technician, Electronics:

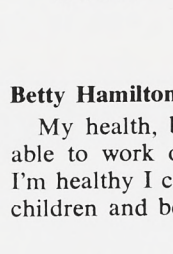
I'd say my health. I've been at Northrop three years now and have only missed three days because of illness.



Mrs. Bloom

Verni Bloom, chief operator, Ventura:

A lot of things, really. But mostly my good health and the health of my family. I have an aunt who is 94 and enjoys life very much. I only hope I can be as happy when I am that age as she is now.



Mrs. Hamilton

Betty Hamilton, assembler, Electronics:

My health, because without it I wouldn't be able to work or do anything else. As long as I'm healthy I can enjoy my children and grandchildren and be able to do anything I want to.



Mr. Hicks

Bob Hicks, resin mixer, Ventura:

My son. He is four months old and already he watches football games with me on television. I'm very thankful that I have him.

Joe Akers, crane operator leadman, Aircraft:

Successful open heart surgery on my daughter Shelley, 6. She has had extensive medical treatments since birth, so my wife, Janice, and I are especially grateful for the encouragement of our Northrop friends and the assistance of the Northrop Group Insurance. It has covered almost all of our bills which now total over \$15,000.



Mr. Akers

Robert Smith, metal bonder, Aircraft:

A new home and Northrop friends. Fire destroyed our old home and possessions, putting my wife, me and seven children in the street. Northrop friends as individuals and NORAIT as an organization have helped in many ways. Now we have a new home, our health and a bright outlook.



Mr. Smith

Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

Plymouth, 1968 Custom Suburban, r/h, air, d/brakes, p/s, auto. trans., 3 seats, \$2,900. 213-379-7853. A

Chevrolet, 1960 Impala, chrome rims, \$300. 213-371-7830. A

Oldsmobile, 1958 98, new Premium nylon tires, \$250. 213-759-5717. A

Volvo, 1969, 142S, \$2,775. 213-454-0462. A

Ford, 1959 Ranchero, large, r/h, o/load springs, 292 eng., \$550. 213-325-4390. A

Chevrolet, 1956, needs paint & minor body work, \$250. 213-425-3786. A

VW Camper, 1967 Campmobile w/pop-up top, Empt exhaust, lug. rack, \$1,895. 213-883-7969. A

Mercury, 1962 Monterey, 4-dr. h/top, p/s, p/b, r/h, \$475. 213-645-6447. A

Pontiac, 1967 Bonneville, 4-dr. sedan, auto. trans., a/c, all power equip., \$2,400. 213-372-8903. A

Cougar, 1968 Landau, p/s, p/b, a/c, d/brakes, 302 cu. in., auto. trans., \$2,700. 714-528-3517. A

Chevelle, 1968 396, 375 h.p., Hurst 4-spd., \$2,400. 213-320-6448. A

Chevrolet, 1962 Impala, \$475. 213-675-5329. A

Pickup, 1969 Ford, 8' bed, 6 cyl. stick shift, \$2,000. 213-327-9044. A

Signet, 1967, 4-dr., full power, air, auto., 4-bbl., \$1,550. 213-373-4007. A

Triumph, 1964 1200 convt., 26,000 mi., \$595. 213-325-8211. A

Oldsmobile, 1964 F-85 coupe, auto. trans., p/s, radio, \$850. 213-474-3393. A

Station Wagon, 1962 Falcon, stick shift, \$300. 213-596-0019. A

Station Wagon, 1962 Rambler 660 Classic, auto. trans., new eng. & trans., \$325. 213-377-4018. A

Chevy II, Nova 400, 6 cyl., 2-dr. h/top, p/b, r/h, \$595. 213-427-8734. A

Ford, 1964 Custom, 2-dr., V-8, 3-spd. auto., r/h, p/s, \$395. 213-371-3201. A

Falcon, 1966 Futura, V-8, p/s, a/c, \$1,650. 714-828-6719. A

Volkswagen, 1969, sunroof, AM-FM radio, take over \$70 mo. pymts. & \$200 equity, \$1,900 bal. 213-376-3247. A

Pickup, 1956 Ford, V-8, o/drive, stick shift, \$400. 213-422-4329. A

Plymouth, 1969 Roadrunner, auto., extras, \$2,500. 213-676-1085. A

Volkswagen, 1967, d/brakes, AM-FM radio, \$1,295. 213-545-5088. A

Ford, 1963 van, 3 seats, \$950. 714-638-4623. A

Corvair, 1965, rebilt eng., 4-spd., \$850. 213-830-8873. A

Ford, 1963 Galaxie 500 XL fastback, r/h, Cruise-O-Matic, extras, \$625. 213-377-9861. A

Mustang, 1966, V-8, auto. trans., p/s, 27,000 mi., \$1,350. 213-532-9923. A

Oldsmobile, 1966, Toronado, low mileage, \$2,495. 213-371-2693. A

Chevrolet, 1956, 4-dr., htr., 6 cyl., o/drive, Muntz stereo, mag whls., \$225. 213-534-1696. A

Ford, 1960 convt., p/s, p/b, Cruise-O-Matic, \$350. 213-375-9640. A

Oldsmobile, 1963 F-85 Cutlass, r/h, 2-dr. h/top, p/s, p/b, auto. trans., console, \$650. 213-370-4198. A

MGB, 1967 G.T., wire whls., 23,000 mi., \$2,200. 714-644-2887, 213-329-2926. A

Station Wagon, 1969 Datsun, stick shift, a/c, r/h, \$2,200. 213-630-1844. A

Pickup Truck, 1966 Ford, 1/2-ton, 8' bed, \$1,150. 213-644-2020. A

Station Wagon, 1966 Olds Vista-Cruiser, fact. air, p/s, 9-pass., \$2,150. 213-941-1909. A

Station Wagon, 1963 Chev. Nova, p/s, p/b, r/h, chrome carry-all, \$695. 213-679-6602. A

Station Wagon, 1957 Ford 2-dr., 312, 3-spd. floor, r/h, rebilt. eng. & sync. trans., many extras, \$500. 213-921-2394. A

Ford, 1966 Econoline Supervan, 240 cu. in., 6-cyl., auto. trans., \$1,800. 213-325-0309. A

Jaguar, 1968 XKE type, all extras, h/top, \$4,100. 213-670-9309. A

Station Wagon, 1967 Plymouth Fury III, 4-dr., 325 h.p., trailer tow pkg., p/s, p/b, a/c, \$1,975. 714-544-7349. A

Buick, 1962 Skylark cpe., all factory options, \$595. 213-346-6675. A

Mustang, 1966, V-8, r/h, stereo tape, a/c, p/s, \$1,750. 213-377-3532. A

Porsche, 1964 C, AM-FM radio, chrome whls., ski rack, \$3,200. 714-494-6191. A

Dune Buggy, Mini T, new clutch, \$900. 213-672-6952. A

Chevrolet, 1962 convt., V-8, p/s, \$400. 213-370-6914. A

Oldsmobile, 1961, 2-dr. h/top, p/b, p/s, auto. trans., \$275. 213-323-1791. A

Chevrolet, 1964 Impala, \$900. 213-679-8808. A

Automobiles For Sale

Cadillac, 1963, full power, fact. air, \$1,100. 213-927-8947. A

Station Wagon, 1960 Chev. Brookwood, 283, stick shift, \$325. 805-482-8359. A

Household Items For Sale

Pillows, 2 moth-proofed, imported 100% white goose down filled, \$7.50 ea. 213-674-6076. B

Sewing Machine, blonde, Monarch, uses Singer parts, buttonhole attach., \$28. 213-371-8695. B

Breakfast Set, chrome 5-pc., turquoise vinyl uphol., light marble formica top, \$50. 213-675-5946. B

Sewing Machine, Brothers, portable, 1964 model, \$50. 714-837-6067. B

Bedroom Set, king size, 10' bookcase h/ board, triple dresser w/mirror, dble. chest, 2 night stands, light mahogany, \$250. 213-320-7425. B

Bedroom Set, blonde, bookcase h/ board, chest w/mirror, 2 night stands, \$45. 213-326-6425. B

Dishwasher, 6 yrs. old, G.E., never used, \$100. 213-675-6020. B

Sectional, 4-pc., turquoise, \$40. 213-374-7364. B

Sofa, Riviera convt., early American style, \$20. 213-866-5968. B

Table Lamp, hand-painted, 26" tall, 15" dia., green w/yellow & red roses, \$125. 213-676-0516. B

Range, O'Keefe & Merritt, 10 yrs. old, 35" wide, \$35. 213-679-5506. B

Refrigerator, Frigidaire, & stove, elec. dble. oven, 2 yrs. old, gold tone, \$175 or sell sep. 213-323-5427. B

Range, O'Keefe & Merritt Contempo III, all extras, \$250. 213-752-2400. B

Refrigerator, 1968 Westinghouse, 16 cu. ft. deluxe frostfree model, used 6 mos., \$190. 213-322-4383. B

Chests, Mr. & Mrs. 5-dwr., hand-crafted, Oriental design, \$50. 213-451-3520. B

Stove, Wedgewood Holly, apt. size, \$100. 213-675-4038. B

Desk, S roll top, oak, \$300. 213-324-1914. B

Freezer, 17 cu. ft. Hotpoint, upright, \$125. 213-323-9076. B

High Chair, chrome, folds, \$10. 213-676-7429. B

Bed, full size, box springs, mattress & pad, frame, 2 sets linen, quilted bedspread, 2 yrs. old, \$45. 213-645-7972. B

Playpen, wooden, \$12. 213-671-0925. B

Coffee Table, Spanish, dk. solid wood, 3 mos. old, \$20. 213-676-0430. B

Sofa & chair, \$45. 213-831-1745. B

Sectional, 3-pc., \$99.95. 714-839-4040. B

Vacuum Cleaner, Sunbeam hand-type, elec., never used, \$10. 213-423-1363. B

Chest, Babyline, 4-dwr. & wardrobe closet, natural finish, \$15. 213-833-7722. B

Corner Sofa, \$250. 213-675-6963. B

Refrigerator, Philco 9 cu. ft., crosstop freezer, apt. size, \$35. 213-832-1684. B

Miscellaneous For Sale

Boxes, for stereo 12" speakers, 24" high, maple, \$10. 213-374-4703. C

Movie Camera, Kodak M-6 Super 8, \$60. 213-323-0029. C

Golf Clubs, full set of Wilson registered irons, putter, wedge, bag & folding cart, \$75. 714-638-4363. C

Seats, folding-type, from Land Rover, \$45. 213-545-6719. C

Drum Set, Ludwig Super Classic, 4 drums, 4 cymbals, stool, stands & sticks, \$475. 213-696-3467. C

House, 3-bdrm., 1 1/4 bath, cpts., bltins, yard, Torrance S. Bay, \$26,500. 213-372-3373. C

Wedding Gown, lace, full skirt, \$55. 213-370-0250. C

TV, color, Motorola, 2 yrs. old, 23" console, \$200. 213-547-0780. C

Camera, Cannon f1.9, auto., \$75. 213-674-5442. C

Drum Set, Ludwig Super Classic, Zildian cymbals, covers, trap case, \$425. 213-375-7765. C

Mobile Home, 1958 Kit, 10' x 47', 2-bdrm., lge. living rm., cpts., El Rancho Trailer Park, \$2,450. 805-485-4139. C

Cabin Cruiser, 21' Owens, w/tandem trailer, elec. brakes, \$2,495. 213-325-9875. C

Wheelchair, folding & portable, Everest & Jennings, \$25. 213-325-5245. C

Golf Clubs, Spalding, Robert Jones, \$35. 213-377-6658. C

Ice Skates, girl's, white figure, size 5, \$15. 213-375-9689. C

Wheels, antique, wooden, Ford w/complete front end, \$50. 213-347-1175. C

Rifle, Winchester mod. 70, 308 cal., 234 power Weatherby Imperial scope, detach. sling, recoil pad, case, 20 rnds. ammo, \$135. 213-324-1949. C

Boat, 16' Glasspar-Avalon, Merc. 85, full equip., Wallstronig tilt trailer, \$1,500. 714-522-4340. C

Condominium, 3-bdrm., den, 2 baths, 2-car gar., pool & clubhouse, \$36,000. 213-547-2716. C

Record Player, stereophonic, G.E. Trimline 300, 4-spds., 2 spkrs., 45 rpm record adapter, \$40. 213-645-1274. C

Stauffer Table, deluxe, \$95. 714-535-6712. C

Chronograph, men's Giraud-Perigeaux, \$75. 213-759-0493. C

Camera, Leica-III-F 50 mm, f/2, Sumicon lens, telephoto, viewfinder, access., \$125. 213-672-2370. C

TV, 25" Packard Bell, \$75. 213-374-1509. C

Miscellaneous For Sale

Trailer, on bank of Colorado River in Blythe, 35' x 8', new refrig., 1-bdrm., \$1,300. 213-325-5394. C

Bicycle, boy's Schwinn Sting Ray, \$30. 213-378-2790. C

Travel Trailer, 1967 15 1/2' Santa Fe, sleeps 6, stove w/3 burners & oven, \$800. 213-673-4598. C

Surfboard, Takayama, Scorpion 6' 10", \$75. 213-374-8608. C

Freight Train, Lionel, diesel, electronic switches, many access., \$55. 213-542-3607. C

Aquarium, 10 gal., pump, filter, \$10. 213-396-6739. C

Sailboat, 13' O'Day Widgeon, trailer, access., \$785. 213-474-5682. C

Drill Press, Craftsman 150, floor model w/ motor, \$100. 714-897-0994. C

TV, 21", Magnavox, \$15. 213-532-7846. C

Tape Recorder, Pencrest, solid state, A.C. only, \$35. 213-823-1788. C

Motorcycle, Yamaha 250, 5-spd. trans., \$310. 714-539-5812. C

Motorcycle, 1967 Triumph Mountain Cub, 200 cc, less than 3,000 mi., \$350. 213-941-6953. C

Units, 6, Crenshaw Compton Ave., income \$6,000, \$59,500. 213-675-1776. C

Motorcycle, 1967 Yamaha, 2 cyl., extras, \$335. 213-371-7161. C

Floor Safe, \$35. 213-644-5048. C

Aquarium, 10-gal., hood lights, filter, pump & gravel, \$25. 213-676-7269. C

Scuba Diving Outfit, complete w/72 cu. in. tank w/J-valve, \$165. 213-534-1028. C

Accordion, Milano, 120 bass, deluxe, 9 switches, used approx. 6 mos., \$250. 714-826-8068. C

Bowling Ball & bag, ladies' 14-lb. Brunswick Black Beauty, \$8. 213-371-3982. C

Organ, elec. Baldwin spinet, walnut Model 27, bench & earphones, 2 yrs. old, \$700. 213-326-5566. C

Boat, 19' Overnighter, 120 h.p. Merc., stern drive, fully equipped, trailer, \$2,495. 213-379-7071. C

Bicycle, 10-spd., Huffy Deraileur, w/1 h.p. o.r. eng., \$75. 213-677-6348. C

Revolver, Colt Frontier, single action, new mfg. .38 Special, \$125. 213-375-4312. C

Wet Suit, dive & surf Bodyglove, used 1 winter, \$12. 213-374-9944. C

Telescope, Terrestrial, Sears Model 6323, tripod, vari-power magnification 15X-60X, \$10. 213-324-7097. C

Pistol, Star, 9mm auto., extra clip, \$55. 213-370-4475. C

Skis, Heads Standard, 215 cm., cable bindings, \$35. 213-398-2939. C

Motorcycle, 1969 Honda 90, \$285. 213-387-5743. C

Engine, 1963 Corvair, \$110. 213-545-6235. C

Travel Trailer, 1965, Aljo, self-contained, \$1,450. 213-534-4930. C

Engine, for full race Chrysler drag boat, spare parts, \$450. 213-371-2531. C

Home, Palos Verdes, 3-bdrm., 1 1/4 baths, lge. den, assumable 5 1/4% loan, \$41,900. 213-377-5003. C

Amplifier, RCA AM-FM 500-w., Sony 250 tape deck, RCA turntable, Motorola 8-track deck, in cabinet, 3-way spkrs., \$550. 213-378-9741. C

Poodle, champagne, male, min., 9 mos. old, AKC reg., \$35. 213-679-8426. C

Coat, lady's, black Borgana fur, size 12, \$80. 213-677-2096. C

Target Rifle, Winchester Mod. 52C, 28" bull bbl., Redfield int. rear, extras, \$200. 213-839-2989. C

Motorcycle, 1967 Yamaha Scrambler, 305 cc, many extras, \$325. 213-545-3519. C

Sailboat, 16 1/2' 505, w/trailer, complete racing equip., \$1,100. 213-674-8997. C

Raincoat, lady's, black, size 18, \$18. 213-299-9489. C

Lot, Hesperia, paved street, 105' x 300', \$2,500. 213-377-6352. C

Insulation, 2" 80% of roll, fibreglass, vapor backed, \$2. 213-376-4831. C

Property, residential, Lake Havasu City, Ariz., lake view, \$2,000 & take over approx. \$1,800 pymt., \$40 mo., or \$3,800. 213-672-0548. C

Organ, Conn electronic, Leslie spkr.,

Long Trailer Trip to Follow Hank Cozad's Retirement

Hank Cozad, foreman, Boeing 707 Structural Subassembly, closes 28 years with Northrop when he retires this month.

Mr. Cozad joined the company on Nov. 7, 1941, working with the Aircraft Division on the P-61 Black Widow night fighter. After nine years at Hawthorne he went to Ontario as crew chief on the F-89 Scorpion flight tests. When the tests were shifted to Palmdale in 1955, he came to the Electro-Mechanical Division. He first worked on ground support equipment and then on the Hawk launchers.



Mr. Cozad

He also worked on T-38 and

F-5 support before transferring to his last job with the division's 747 support.

Mr. Cozad's plans for the remainder of the winter include doing maintenance work on some apartments he owns. Then next summer he and his wife, Cora Lee, will begin a year's trailer trip of the United States. They intend to make a complete circle of the nation. The route goes up the West Coast to Canada and then back to his original home in Wyoming.

From there they will drive to the East Coast, swing south to New Orleans and then back to the West Coast to continue his long California "visit." He calls his years here a visit because he came to California as a visitor in 1936 and never got around to leaving.

Robert Hannon Seeks to Inform San Diego Voters on Local Issues

Robert L. Hannon, an engineer with Northrop-Global Marine, San Diego, has emerged as the city's "loyal opposition."

Noting that many city charter

changes submitted over the years, were never challenged he decided that this was because many voters did not understand the "cons" as well as the "pros" of the issue. As a result he has undertaken the job of informing voters himself.

With 17 charter amendments before the voters in the Nov. 4 election, he wrote arguments against 10 of them. San Diego City Clerk John Lockwood selected eight of the 10 to appear on sample ballot pamphlets which were mailed to all registered voters.

Involved

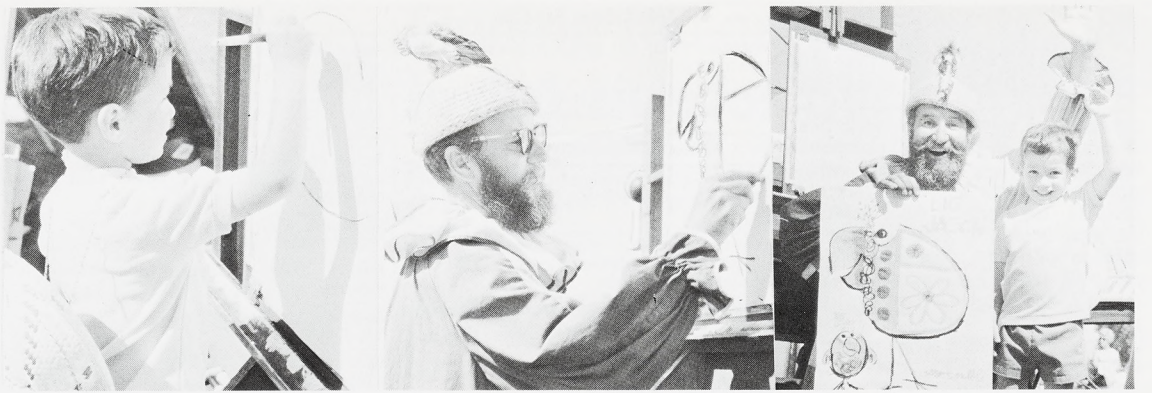
Mr. Hannon said his arguments were for the purpose of getting more people involved in their city government. "If city officials would seek arguments," he said, "it would be helpful and get more people interested in their government. Legislators react to those who show an interest, right or wrong."

GIANT STEP

(Continued from page 1)

submit.

"We will be giving away 30 turkeys on Nov. 24," he said. "And don't forget the grand prize for the best suggestion submitted during GIANT STEP. That will be a one-week trip for two to Hawaii. And the flight will be aboard a Pan American 747, the plane we are helping to build."



JASON MELTZER, LEFT, DRAWS LINE WHICH MR. SCRIBBLE, CENTER, TURNS INTO PICTURE.

Bob Peck Doubles As 'Mr. Scribble'

Bob Peck, Electro-Mechanical Division graphic artist, began his art career as a two-year-old scribbling across the face of a book. Years of study and work turned his scribbling into fine art which is represented in leading California galleries.

Now fate has reversed the trend and he is back scribbling again.

It began five years ago when he was helping crew a sailboat on a trip from the East Coast to California. They were caught in a storm, lost their sails, and were threatened with capsizing.

"It was a pretty tough moment," Bob recalls. "All I could think of was regret that I had refused to help my wife with a school party. It was a silly thing to think about at a time like that, but my mentioning it to her when I got home was even sillier. She said, 'How wonderful! It so happens we're having another one

next week. You can help with that."

He pleaded that he didn't know of anything to do. His wife, Marie, came up with the idea of a scribbling act. The children of Prisk Elementary School, Long Beach, would be invited to make any kind of mark they wished on his easel and then Bob would incorporate their scribbling into a finished picture.

He had never done anything like this and was still protesting that he couldn't do it when they pushed him on stage. Then he discovered to his surprise that he had quite a talent for turning scribbles into pictures. Since that time he has donated his talents to more than 60 school and church carnivals and has made more than 3,600 scribbles. He usually turns out 50 to 60 a day at a carnival, but once under pressure drew 130.

Nonstop

Sometimes Bob does so many that he loses circulation in his drawing arm and has difficulty getting ideas. But he never quits until the last child is accommodated.

"The reason I keep going is because once I did stop and, man, did I regret it," he said. "At one school carnival a little big eyed girl stood around all afternoon. She never said a word. Finally when I got so tired I gave up, she burst into tears and ran away."

He then learned that she had a speech impediment and could not talk. He realized that she had been wanting a scribble all day.

PLAQUE

(Continued from page 1)

of Martin A. Severson and Dick Stuffer who acted as campaign managers to organize the drive for job pledges in District 2 of Orange County.

In addition to helping secure pledges from companies in this district, the Electro-Mechanical Division also pledged for the year ending July 1970 to hire 24 people under the program. Thus far, the division has hired 17.

The NAB drive is a nationwide program and a partnership between private industry and the U.S. government to provide jobs for people who previously were considered unemployable.

It is intended to assist those lacking job skills, work experience, education or social acceptance. To participate in the basic job program the employee must be a member of a family receiving welfare payments or whose net income is below a living standard.

The Summer Youth Program was for young disadvantaged students who needed summer jobs to be able to return to school in the fall.

and couldn't ask for it. He ran after her and made her a free scribble. Since then he has never quit as long as anyone even looked like they wanted to make a scribble.

There is usually a small fee for the scribbles which is donated to charity. Once or twice he did his act commercially, but claims it left him with a sort of unclean feeling. He has so many calls for Mr. Scribble that it is cutting into the time he has for his fine arts painting. He claims he doesn't mind because, "While everyone doesn't like art, everybody seems to like scribbling."

All Ages

And that means the old as well as the young as he found to his surprise. Recently he was asked to scribble at a convalescent home in North Long Beach. He protested that this was for kids, but was persuaded to go anyway. He expected to make a couple of sketches and quit, but every one of the 30 old people wanted to participate.

"Among them was one dear old lady in a wheelchair," he recalled. "I turned her scribble into a picture of a young girl with a man wearing an old fashioned straw boater."

She looked at it and smiled for the first time that day, "Why it does look like Elmer!" she said and her eyes glistened with tears.

The Reward

Who was Elmer? Bob never found out if he was an old sweetheart, a husband or a brother. "But I'll never forget the expression on her face," he said. "If you could have seen it you wouldn't have to ask why I find being Mr. Scribble, scribbler, more fun than being Bob Peck, artist."

NRC Calendar

For information on NRC activities call Personnel Activities, ext. 244, or contact the club commissioner. All meetings are held in the NRC Clubhouse, 1834 Valencia, Fullerton, unless otherwise noted.

ART—Every Wednesday at 7:30. Model on alternate weeks, also still life. Bring paints or sketch pad. Non-professionals and beginners welcome. Ed Mosher, ext. 1184.

BASKETBALL—Contact Wayne Baptiste, ext. 402.

BIBLE—Mondays, Wednesdays, Fridays at 11 a.m. Y-1 Conference Room. Tuesdays and Thursdays at Y-42. Still studying the Book of Acts. Marvin Wiebe, ext. 311.

BOWLING—Tuesdays at 6:30. Carter's Bowl. Vincent DePaul, ext. 443.

BRIDGE—Multi-session tourney under way. Next play Nov. 20 and Dec. 4. No play during Thanksgiving Week. Jack Kirkeby, ext. 1207.

GEM AND MINERAL CLUB—Work nights every Monday. Instructions available.

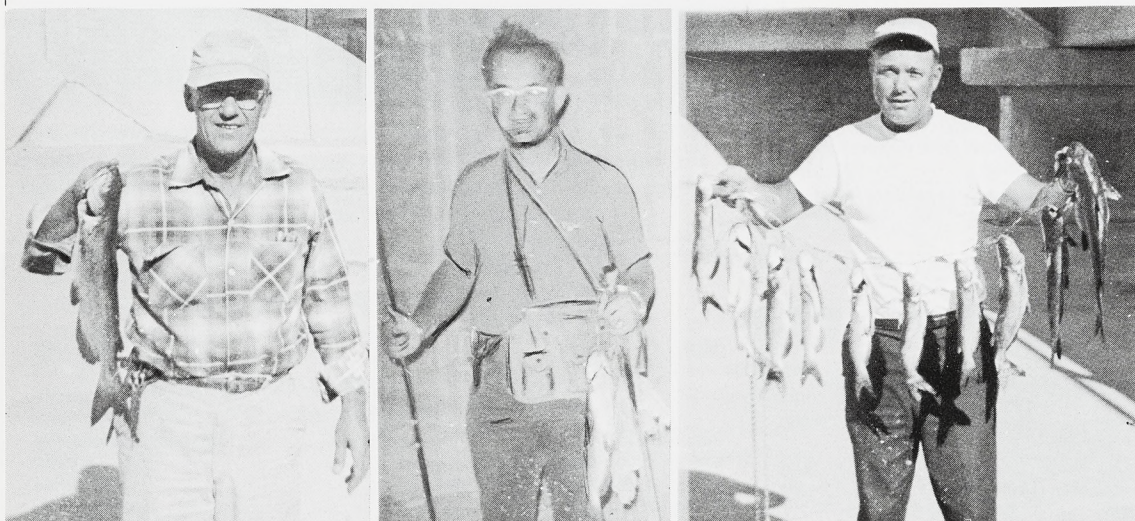
POCKET BILLIARDS—Every Wednesday at Big John's, 4 p.m.

RADIO—Meets at radio shack every day at noon.

SKI—Inactive. Ski enthusiasts should contact Aircraft Division Club for its schedule.

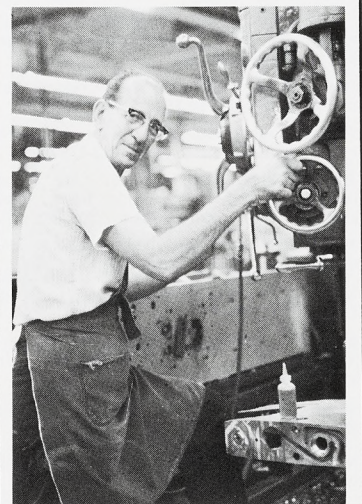
TABLE TENNIS—Daily at noon. Cafeteria area. Bring your own paddle.

NRC FISHERMEN GET RECORD CATCH



HUGH ZEBARTH'S 2½-pound channel catch wasn't too little, but it was too late to tie the same size catch by Eugene Eich, center, in the NRC Fresh Water Fishing Club's competition recently at the All-American Canal. The contest ended at noon and Mr. Zebarth's catch came just after the deadline. Frank Stunder, right, was the first to catch the limit, according to Club Commissioner Art Bowser.

On The Job



ELROY NORRIS, radial drill operator in the Electro-Mechanical Division Machine Shop, counterdrills holes in F-5 pylons. Mr. Norris has been with the division for four-and-a-half years.

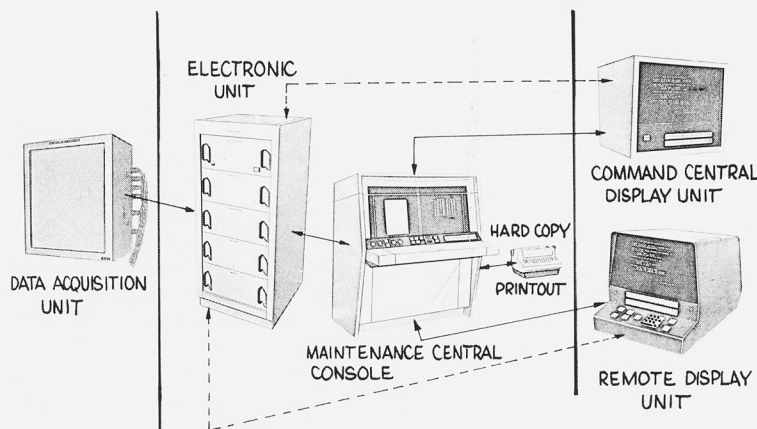
NORTHROP NEWS

ELECTRO-MECHANICAL DIVISION EDITION

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December 3, 1969



NAS 2070 MONITORING SYSTEM

NAS-2070 Is Latest in Test, Monitoring Systems

The first of a new generation of automatic test, monitor and information systems was demonstrated to Rear Admiral Harry C. Mason, commander, Naval Ship Engineering Center, Hyattsville, Md., during the admiral's recent visit to the Electro-Mechanical Division.

"The NAS-2070, perfected by the Electro-Mechanical Division's Automation Systems, is the latest in a long line of test and monitoring systems developed by Northrop to help the Navy and other services solve critical systems performance problems," according to Dan Chung, manager, Automation Systems.

The NAS-2070 combines the Electronics Division's 1070 computer with the Electro-Mechanical Division's data acquisition, control/display, input/output units and systems software.

It has a broad base technology. Depending upon programming, the NAS-2070 can provide total ship or aircraft performance monitoring and display real time system status information. It can also furnish failure trend infor-

mation to maintenance personnel, operate a management information system, and perform as a multipurpose instrumentation system. It can support an industrial automation system or a military command and control system.

The new 2070 has many unique features. One is its high speed. Currently operational test and monitoring systems can make up to six measurements per second. The NAS-2070 can make 5,000. Some of its programming can be modified simply by typing data directly into the machine. It can give simultaneous information for different uses and has been specially designed for simplicity of operation.

In addition to simplicity, the (See NAS 2070, page 6)

GIANT STEP Winners Qualify For Cash Suggestion Awards

Sixteen who submitted suggestions to GIANT STEP, a special program to stimulate cost-saving ideas, have already qualified for cash awards under the regular Northrop Cost Reduction Suggestion Award program, according to C. H. Hargrove, chairman of the GIANT STEP committee.

Those receiving cash awards were Sammy Guzman, Steven Winter and Gerald Stiffler of 747 Production; A. C. Gorence, Fabrication Production; James Prater, Electronics Production; Julian Bloom and Don Koehler, Manufacturing Engineering; Judy Sims and William H. Perry, Procurement; Bob Taylor, Industrial Engineering; and F. C. Davis, Quality Management.

Others include Elizabeth Schulz, Plant Engineering and Maintenance; Richard Rupert, Receiving Tool and Gage Inspection; Julian Gomes, Floor Beam Assembly; Roy E. Hudson, Process Control; and Dorothy L. Davis, Technical Procurement.

Thirty others received Thanksgiving turkeys on Nov. 24. Additional prizes are now being processed.

In addition to these cash awards made from the first week's submission to GIANT STEP, 76 other submissions are under consideration for the additional Suggestion Award Program cash awards.

According to the committee, GIANT STEP has greatly stimu-



PLANNING FOR GIANT STEP

FRANK W. LYNCH, vice president and general manager, Electro-Mechanical Division, right, joins Dick Stiffler, left, and Chuck Hargrove in planning the final big push for GIANT STEP.

lated submission of suggestions. Previously, cost-saving suggestions were received at the average rate of five to ten a week. First week's submissions under GIANT STEP was 170. The number increased the second week and is now running between 40 and 50 daily.

Frank W. Lynch, vice president and general manager, said the response to GIANT STEP was extremely gratifying. "It is still too early to determine how much this fine campaign will reduce our operating costs," Mr. Lynch said, "but indications are that the reduction will be substantial. GIANT STEP has another nine days to run and I hope that you will bury our committee in suggestions. We cannot have too many."

"Then after GIANT STEP ends on Dec. 12 we will still have our regular Northrop Suggestion Award program. Northrop always has need of new ideas."

MENGERT SINGS IN CHURCH PROGRAM

Carl Mengert, Electro-Mechanical Division budget analyst, will be featured soloist in a special Christmas Oratorio by Camille Saint Saens at the First Methodist Church of Anaheim Dec. 14.

Mr. Mengert is a former professional concert singer and has appeared under the direction of Roger Wagner, Alfred Wallenstein, Arturo Toscanini, Sir Thomas Beecham, Johnny Green, Carmen Dragon, Richard Rodgers and others.

Mr. Mengert has appeared as a soloist with many church groups since 1947. For the 1969 program he will appear both as a tenor soloist and as a member of the ensemble. The program will be presented at 9 and 10:30 a.m. and all Northrop personnel are cordially invited to attend.

Northrop Services, Inc., New Company Organized

A new company, Northrop Services Inc., has been organized as a wholly owned subsidiary of the Northrop Corporation, according to Frank W. Lynch, vice president and general manager, Electro-Mechanical Division.

The new organization will operate as an entity of Northrop's Electro-Mechanical Division with headquarters in Anaheim.

Northrop Services Inc. was organized to provide technical services, special engineering services, and services to operate complex equipment and facilities in support of the military services, NASA or commercial enterprises.

Continued Expansion

Such operations are no new venture for Northrop's Electro-Mechanical Division. "At the present time," Mr. Lynch said, "we are supplying support services for such diverse operations as the Air Force at Edwards Air Force Base, the Navy at Point Mugu, the Jet Propulsion Laboratory at California Tech, and NASA at Huntsville, Alabama; Ames, California; and the Manned Spacecraft Center in Texas.

"Organization of the new company to handle these and other

support services was made to expand Northrop's activities and ability in this important field," Mr. Lynch said.

Officers of Northrop Services Inc. will be Frank W. Lynch, president; George Mangurian, vice president; R. L. Gibney, treasurer; and Dave Olson, secretary. The board of directors includes Mr. Lynch, George Douglas, Fred Stevens, Mr. Mangurian, and Mr. Gibney.

The new company will have headquarters in Anaheim with the Electro-Mechanical Division, but all operations will be at field locations.

ELECTIONS HELD

Electro-Mechanical Division NRC Clubs are conducting their annual elections for commissioners this month. First returns show Bud Latchford as the new commissioner for the Coin Club. Woody Woodsmall takes over direction of the Fresh Water Fishing Club. Vic Crawford heads the Camper and Trailer Club and Fred Barber will guide the Desert Rats for another year.

New commissioners for the other clubs will be announced later.

Production Group's Utilities Saving Praised by Chief Plant Engineer

A 21 per cent reduction in electrical power consumption by the Production, Mechanical Assembly, and Stringer Operations in Y-12 brought a letter of commendation from Merrill E. Skilling, chief plant engineer to D. A. Niccoli, manager of the Y-12 operations.

Mr. Skilling noted that the savings had come from conscientious efforts by employees under Mr. Niccoli's management.

"This proves that shutting off heaters, process lines, compressed air, lights and water when they are not in use really does save dollars," Mr. Skilling said. "Small as each of these savings may have been in themselves, they added up to a total of \$1,000 for the month."

The Production, Mechanical Assembly and Stringer Operations is responsible for the Electro-Mechanical Division's work on the Boeing 747 Program. This includes manufacture of stringers and assembly of floor beams,

frame members and miscellaneous items.

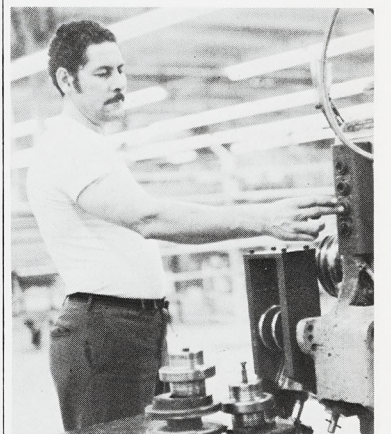
Mr. Skilling pointed out that similar savings can be made in all departments. "We are developing a very strong Utility Conservation Program," Mr. Skilling

(See UTILITIES, page 6)

On The Job



ROD POUND is a copy cameraman in the Electro-Mechanical Division Printed Circuit Fabrication unit. Here he checks measurements on a layout for a circuit board. Rod has been with Northrop for five-and-a-half years.



HOW TO SAVE
RAY APODACA cuts off a Buffalo machine on the stringer line to conserve electricity.

SHE 'READS' TEXTBOOKS

Helping Blind Gain College Education

Community service takes many forms. For the wife of an Aircraft Division senior technical specialist it is reading for the sightless.

Mrs. George Agnew spends about four hours a week in a recording studio reading textbooks so that blind students can hear the recording and gain knowledge toward their formal education.

Mr. Agnew says the organization, Recording For The Blind, Inc. is particularly anxious for volunteers to read technical matter.

"Since graphs, diagrams and so on often appear in technical

textbooks, people with a scientific background who can put the meaning of such illustrations into words are particularly helpful to a blind student auditor," Mr. Agnew told the Northrop News.

Student Selects Book

"The student chooses the book and sends it to the non-profit organization where a volunteer records it on donated audio tape," Mr. Agnew explained. Seven hundred California students benefit plus many others out of state.

Reading takes place in sound-proof booths at studios in Hollywood. A monitor follows the

reader and corrections are made for final editing.

Further information can be obtained by calling studio director Jim Ramos at the Los Angeles unit, 664-5525. The address is 5022 Hollywood Blvd.

Plan Ahead To Earn A Scholarship

Plan ahead or you may not have a chance for that scholarship.

That's the advice Stan Church is giving to sons and daughters of Northrop employees who should begin planning for the National Merit Scholarship Qualifying Test next February.

The test is given only to high school juniors, Mr. Church explained. He is executive secretary of Northrop's University Relations Advisory Board.

Northrop awards several college scholarships each year to children of employees. Participation in the annual test is automatic application. Juniors should make application with their high school counselor soon.

Northrop merit scholars are chosen by the National Merit Scholarship Corporation from students who attain the Finalist level. Rank is based on scholarship, leadership, and good citizenship as determined by testing and other procedures.

No Northrop officer or employee plays any part in the selection of a merit scholar. The four-year award covers the undergraduate years.

The amount of the scholarship is based on each student's financial needs. Choice of college is up to the student. The maximum annual amount is \$1,500 and the minimum is \$250.

For further information contact Mr. Church at the Corporate office, ext. 229.

SKI TRIP SLATED

Northrop Ski Club has completed arrangements for its Jan. 17-24 group trip to Aspen, Colo. The package price is \$205 per person.

It includes air and ground transportation, via Denver, lodging at the Snow Flake Lodge (2 per room) and lift tickets for six days.

A \$25 deposit is required for reservations which can be forwarded to Dick Baggett, T3930/T20, at Northrop's Electronics Division.

The club also has planned shorter trips to Mammoth Mountain. Details will be available at a 7:30 p.m. meeting today at NRC Clubhouse, Hawthorne.

ROK Air Force Birthday Celebrated With F-5A Stamps

Four Northrop F-5A "Freedom Fighters" flying in formation are featured on a special South Korean postage stamp commemorating the 20th anniversary of the Republic of Korea's air force.

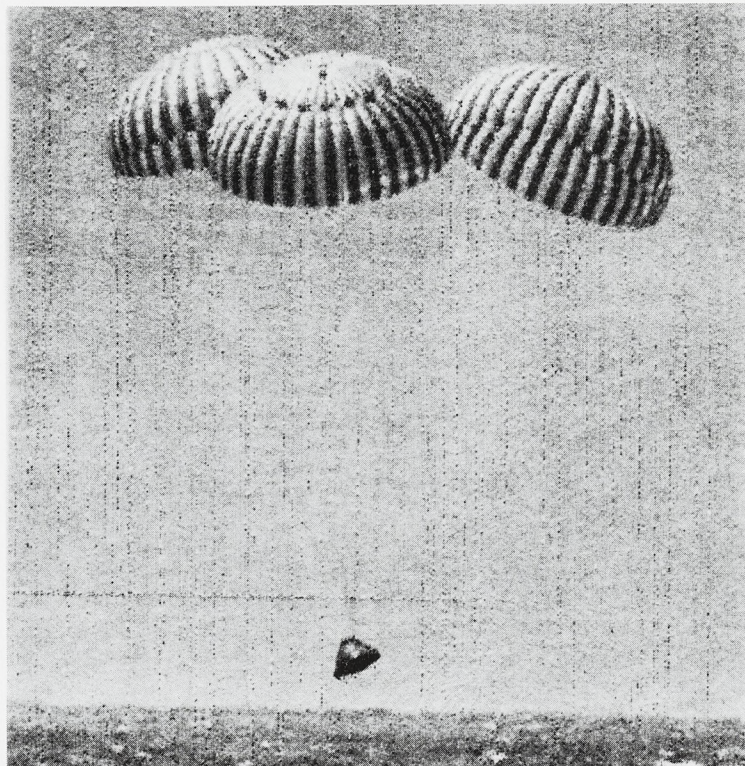
This is the first time, in the recollection of Northrop stamp collectors, that a Northrop-built airplane has adorned a postage stamp.

Two million of the stamps, each in a denomination of 10

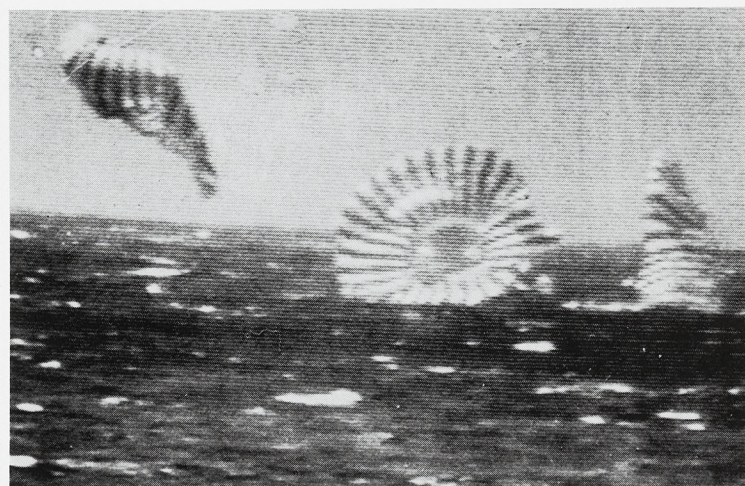


Flying On ROK Stamp

We're Deeply Involved



UNDER NORTHROP-BUILT parachutes, Apollo 12 capsule splashes down in the Pacific. Northrop's Apollo involvement also includes manning the Lunar Receiving Laboratory, bio-medical recording of the astronaut's physical responses after recovery, providing accelerometers, real-time trajectory analysis support, tracking at low altitudes and special radar control apparatus. (UPI telephotos.)



Damman Invites Northrop Personnel to Join AFA

The Air Force Association is seeking new members, according to Floyd Damman, newly elected AFA state vice president.

The Air Force Association is a non-profit organization devoted to supporting the objective of adequate aerospace power for the national security and world peace.

"Individual memberships are open to any United States citizens who believe in the association's objectives," Mr. Damman said. "I know this includes most of us in the aerospace industry."

Personnel in the different Northrop Divisions have volunteered to help obtain prospective individual members. Those in the Aircraft Division should call Maureen O'Malley, secretary to Dan Darnell, Customer Relations, ext. 1671. At Electronics Haw-

thorne the contact is Rose Minton, secretary to Bernie Lipscomb, ext. 881 and at Electronics Palos Verdes contact Carole Thornton, ext. 244, secretary to Bob Ringle. The contact at the Electro-Mechanical Division is Martin Severson, ext. 203. Venturans should call Joanie Garfield, ext. 323, secretary to Tom Flannigan.

Mr. Damman said that Northrop has enthusiastically supported the Air Force Association. The company has been an industrial associate member since the founding of AFA. John R. Allison, Corporate vice president, is a past national president of AFA.

FIRST QUARTER EARNINGS CLIMB

Sales and earnings in the first quarter of the current fiscal year continued upward, Northrop President Thomas V. Jones reports.

In the three months ended Oct. 31 the company earned \$4,547,000 after taxes, a 15.3 per cent increase over the year-ago figure of \$3,942,000.

Sales and other income for the three months totaled \$137,597,000 compared with \$129,971,000 a year earlier. The order backlog increased to \$848,588,000 from \$786,900,000 a year ago.

Discussion in Norway



HANK CHOUTEAU, Aircraft Division's chief test pilot, and Major Hove, commander of the Norwegian Air Force's 336th Squadron, compare experiences in flying the Northrop NF-5. Mr. Chouteau spent three weeks visiting every air base where F-5's are stationed in Norway to demonstrate the low speed maneuvering capability of the Northrop fighter. He reports that he found Norwegian pilots most enthusiastic about the Freedom Fighter.

NORTHROP NEWSMAKERS

Rex Fairless, Ventura, spoke on "Human Implications of Technological Change" before the 15th Federal Personnel Management Conference at the Jack Tar Hotel in San Francisco.

Four Aircraft Division men have prepared papers for presentation at the Air Force Conference on Fatigue and Fracture of Aircraft Structure and Materials this month at Miami Beach, Fla.

HALLICRAFTERS BUILDING PLANT

The Hallicrafters Company, a Northrop subsidiary, has started construction of a manufacturing facility in the El Paso, Texas, International Airport Industrial Tract.

The Hallicrafters facility will be the first plant constructed in the newly developed industrial district. Initially, a 25,000-square-foot building will be erected with acreage available for future expansion. The new facility is expected to open next spring.

Hallicrafters, which specializes in the manufacture of defense electronic systems, communications equipment and systems, and special electron and microwave tubes, will manufacture radio communications equipment in the Texas facility.

Opening of the El Paso facility, according to Charles O. Anderson, vice president, Manufacturing, will coincide with the consolidation of present Chicago-based manufacturing operations into the firm's main headquarters in Rolling Meadows, Ill.

entation at the Air Force Conference on Fatigue and Fracture of Aircraft Structure and Materials this month at Miami Beach, Fla. R. E. Herfert wrote a paper titled "Elevated Temperature Fatigue Behavior of 2024 and 2219 Aluminum Alloys." A. H. Freedman and R. E. Lowrie teamed on a paper titled "Corrosion-Fatigue Behavior of 7075 Aluminum Alloy." M. J. Jacobsen wrote a paper titled "Acoustic Fatigue Design Information for Honeycomb Panels with Fiber Reinforced Facings."

Al Langlois, Aircraft Division, has participated in an Aircraft Industries Association Manufacturing Committee '69 Panel on Composite Fabrication discussion held in Scottsdale, Ariz., to exchange information on the latest developments in the field of composites.

The N-3PB—Northrop's First Production Aircraft

(Editor's note: Now in its fourth decade, Northrop Corporation is known throughout the Free World for products and advanced technologies in the fields of aircraft, communications and electronics.

Behind each of these products is a history of ingenuity, imagination, craftsmanship and determination on the part of dedicated men and women who have served Northrop.

So that present employees may better understand the heritage of Northrop, the Northrop News has prepared a special series of articles on historic Northrop products with special emphasis on the men and women who made them possible.

Presented here is the first article, researched and written by W. C. Ellet III, University of Chicago senior, Northrop National Merit scholar, and a News staffer for the past three summers.)

When the N-3 Patrol Bomber got off the ground, so did Northrop.

When Northrop began design work on the airplane for the Kingdom of Norway in 1940, the company employed 109 people and was just moving into its first factory building (now Plant One).

By the time production of the airplane had reached its peak (one a day) in 1941, Northrop employed 2,500 and had 555,000 square feet of factory space.

The N-3PB was the first complete production airplane produced by the newly-formed Northrop Aircraft, Inc. It was a twin-float, low wing, all aluminum seaplane powered by a

1250-horsepower Wright Cyclone engine.

Moreover, it was the fastest (257 miles per hour at 16,400 feet) and one of the most heavily armed seaplanes (four 50-caliber machine guns in the wings, two 30-caliber flexible machine guns and a bomb load of 2,200 pounds) in the world.

From the perspective of 29 years, however, the N-3PB was more than an efficient, World War II seaplane. It served Northrop as a valuable production experience and as an object of pride in a young industry.

Pioneering

"It was a heck of a good plane for that time. The whole aircraft industry was young, it was poor and it was pioneering, consequently it attracted people who wanted a challenge," said Fran Gibian, now manager — 747 Manufacturing Performance Analysis. (He was supervisor of Loft and Template for the N-3PB.)

"Everybody was interested in the company. You were part of a family which was interested in one thing: getting the plane done. You didn't get anywhere if you weren't interested in aircraft," said Paul Bonham, now project supervisor of two sections of 747 Structural Design. (He was lead engineer on the N-3PB wing.)

Producing the airplane was a challenge to both skill and pride. Norway needed a plane quickly to meet Germany in the air and on the sea; that was the simple imperative of the N-3PB program which eventually turned out 24 aircraft.

The contract was signed in March 1940, although design

work for the plane had begun as early as February. The first N-3 started down the assembly line in August and flew for the first time in November. In eight months, Northrop established itself as a full-fledged aircraft manufacturer.

"The program helped us put together a design and production engineering team," said Richard Nolan, now retired senior vice president of Administration and Manufacturing. (He was manager of Production Engineering for the N-3PB.)

The program, in fact, helped the company organize many of its basic design, production and administration systems. "We designed all systems as the program advanced," said Mr. Nolan.

Although the N-3 was basically a proven Jack Northrop design, the plane did incorporate some features which were relatively new and which established the company as a technological pioneer in a pioneering industry.

"The plane had a truly streamlined canopy and windshield assembly," said Mr. Nolan. The use of internally - stressed and streamlined pontoons, plexiglass and lightweight structural magnesium also were advances.

Northrop's first flight test program took place at Lake Elsinore in the California desert. There the N-3 was checked out by a group of employees and 15 Royal Norwegian Air Force personnel.

Powerful

"The N-3 was an excellent flying airplane," said Al Morgan, vice president, Industrial Relations. "It had quite a bit of power in it. We had no problems getting the plane off the water's surface."

After flight tests, the planes were ferried up the West Coast to Canada where the Norwegians had set up a training base. The planes were then shipped to Iceland, a base for RoNAF operations after the Germans overran their country in 1940.

Although the N-3PB never got a chance to fulfill the mission for which it was designed, coastal patrol, the plane functioned dependably under extreme conditions prevalent in Iceland from the time it first went into service in June 1941.

Three flights of N-3PB's were optional from Iceland, flying submarine patrol, convoy escort, reconnaissance, transportation and ambulatory missions. All maintenance was performed outdoors all year around.

When the "old Northrops," as the planes were called by the Norwegians, went out of service

in 1943, the official credits for the planes stood at 15 submarines found, nine attacked with seven of them damaged and eight German aircraft damaged.

It may sound melodramatic in an era in which thousands of people and millions of dollars worth of machinery and computers team up to produce a single aircraft, but the N-3PB was an intensely personal triumph for the people involved with it.

The N-3PB was a triumph for the people who had attached their hopes to a fledgling company in a pioneer industry. It

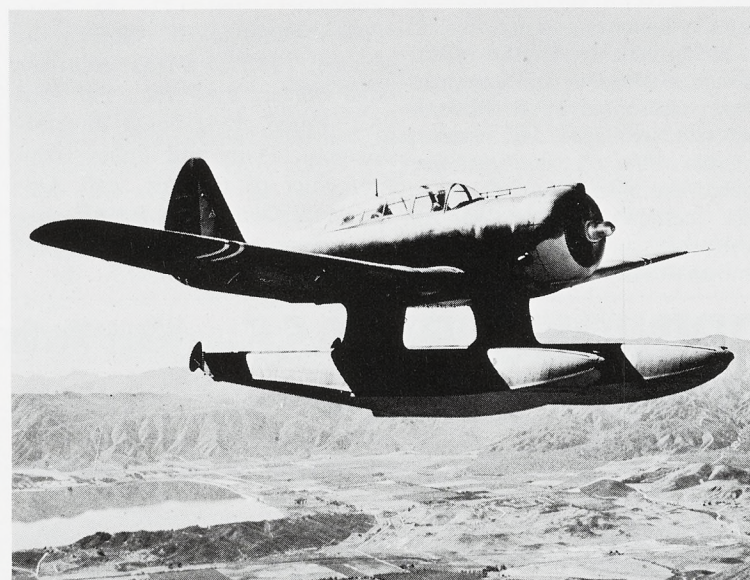
was a triumph of the usual virtues of dedicated employees, yet it was "their" plane in every sense of the word.

It was a triumph for Jack Northrop, the brilliant aircraft engineer, who pioneered many early aircraft designs and was president of a company to which the N-3PB was critically important.

And it was a triumph for the Norwegians, driven out of their own country, who had an aircraft to aid them in the long, costly struggle to return to their homeland, finally free and at peace.



NORTHROP'S FIRST ENGINEERING GROUP
From left, S. J. Waters, Warren Knierien, Bob Enger, Frances Johnson, Don Egger, Don Smith, Ray Gaskell, Tom Quayle, Walt Cerny.



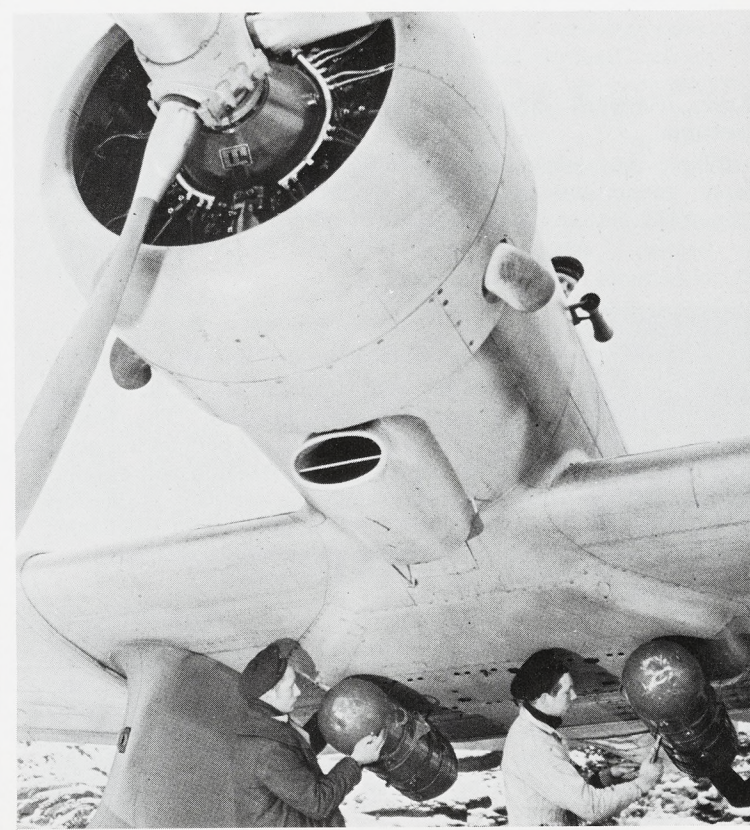
INITIAL FLIGHT TESTS OVER LAKE ELSINORE
From drawing board to flight test in just eight months.



REMOVING ICE WAS DAILY PREFLIGHT CHORE
Hearty Norwegians welcome opportunity to strike at Germans.



ALL MAINTENANCE WAS PERFORMED OUTDOORS IN ICELAND
Sturdy seaplane chalked up outstanding record despite conditions.



NORWEGIANS HANG BOMBS ON WING OF N-3PB
Flying from Iceland, aircraft stalked submarine "Wolf Packs."



DISTINGUISHED AUSTRALIAN VISITS NORTHROP
Air Vice Marshal Colin T. Hannah, left, with Roy P. Jackson.

Air Vice Marshal Hannah Visits Aircraft Division

Air Vice Marshal Colin T. Hannah, C.B., C.B.E., chief of the Air Staff (Designate), Royal Australian Air Force, visited the Northrop Aircraft Division Nov. 13.

Air Vice Marshal Hannah, whose appointment as chief of the Air Staff will be effective on Jan. 1, 1970, was accompanied by Wing Commander Barry M. Thomas, RAAF, assistant air attaché, Washington, D.C.

Air Vice Marshal Hannah arrived in Los Angeles aboard a U.S. Air Force C-140. He was met by T. A. McDougall, Northrop's director for International Plans.

During the visit, the distinguished Australian military leader was welcomed by R. P. Jackson, vice president and assistant general manager, and then briefed on Northrop capabilities. This included presentations on Northrop's present and future families of aircraft.

After viewing the company's latest aircraft developments, the Air Vice Marshal met with Thomas V. Jones, president, Northrop Corporation.

Air Vice Marshal Hannah was born in 1914 and commissioned in the Royal Australian Air Force in 1936. Later he commanded the 6th Squadron, RAAF, in New Guinea, during World War II, and then served as commanding officer, Western Australia.

Among his other important assignments were director-General Personnel from 1951 to 1954, aide-de-camp to Her Majesty the Queen, 1952 to 1955; senior air staff officer, RAF Hq., Far East Air Force, Singapore; director-General, Plans and Policy; deputy chief of the Air Staff; Operational Command, RAAF, and air officer commanding, Support Command.

WET SUIT HELPS

Alexander Sails 'Thistle' Year Around

Bill Alexander, a manager of the Project Planning Support unit in the new Washington Ocean Sciences department offices, races high-performance sailboats. When not on the water, Mr. Alexander works on underwater projects for Northrop's Deep Submergence Systems Project.

A native of the Boston area, Mr. Alexander spent weekends and evenings on the chilly waters of Boston Harbor and Marblehead racing the smaller sailboat classes.

In 1960 he purchased a Thistle, which is a high-performance, 17-foot sailboat that requires a crew of two as well as the skipper. It carries 175 square feet of sail. In 1963 he won the New England District Championship in the craft.

Mr. Alexander extended his sailing season when he moved to Washington, D.C. in 1965 and began sailing the Chesapeake Bay, which seldom freezes over for long periods. With the aid of wet suits, he and his wife, Mary, are able to sail the bay almost year around. Similarly, there are Thistle races in Florida in winter and he towed the Thistle there for the 1965 and 1967 races.

Sailing in Washington area races, Mr. Alexander has won the district championship in four consecutive years. He sailed in 16 Thistle-class regattas in the Chesapeake Bay area in 1968 placing first in each; and, in 1969 he took the Chesapeake Bay Championship which is a prize based on points accumulated from a number of races.

Highlight of his Thistle sailing was second and fourth place in the 1967 and 1968 Thistle Na-

tional Championships on Lake Erie against strong winds in which approximately 100 boats competed.

Searching greater challenge than offered by the Thistle, Mr. Alexander recently purchased an International-14 which he describes as "most sophisticated racing machine in the world." It is a development racing class that permits variances in boat design, sail and equipment. "Fourteens" are known to plane at 20 mph, carry 175 square feet of sail plus a 200 square foot spinnaker and are the forerunners of other larger designs including the Thistle. Recognized as lively boats to handle, his wife is often seen leaning over the side of the

boat to stabilize it in a special harness.

Mrs. Alexander generally crews his local races but, as he says, "in order to maintain domestic tranquillity for major regattas I generally recruit male crews."

Mr. Alexander is a member of the Severn Sailing Association located in Annapolis, Maryland.

He joined Northrop's Deep Submergence Systems Program in 1967. Located in their new quarters in Silver Spring, Maryland, the Project office has now grown to become Northrop's Support Operations department in Washington specializing in ocean sciences engineering and management support.



CHAMPION SAILORS AT WORK
Bill and Mary Alexander cut the waters of Chesapeake Bay.

OPINIONS, PLEASE—What Northrop News Features Do You Like Best?



Marion Flowers, Materiel Review inspector, Electronics:

I think the various hardware stories are the most interesting because they let me know what products the division is working on and what their current status is.

Mrs. Flowers

Kevin Campbell, Manufacturing coordinator, Ventura:

Where they ask a general question and different people answer. Different opinions, as a rule, make that an interesting part of the paper.



Mr. Campbell



Mr. Brunk

Lonnie Brunk, structural mechanic, Aircraft:

I like the want ads, although I have never bought anything through them. The feature stories about people and their hobbies are good. And I like to read about research and development activities, things the company is developing. And an occasional story about what other Northrop divisions are doing is interesting.

Stan Staskevich, Planning, Electro-Mechanical:

I like to read about NRC activities. The clubs do a great job. People need other things to do besides just eating and sleeping. The NRC clubs give us this opportunity.



Mr. Staskevich



Mr. Amador

Rene Amador, specifications writer, Electronics:

I prefer the human interest stories. I find it very enlightening to find out what my fellow employees are doing and some of the different types of hobbies they have.

Wilma Conklin, Procurement clerk, Ventura:

I like the stories about people, especially the ones like the funny story about Warren Clymer chasing the cat. That was very funny. I like the pictures, too. I always look for familiar faces.



Mrs. Conklin



Mrs. Dell

Millie Dell, secretary, Northrop AFPRO:

Oh, I am a confirmed want ad reader, never miss an issue. You really have a lot of different items there, you know. Stories about people, especially those I know, are always interesting. And I like to read about what children, servicemen included, of employees are doing.



Mrs. Alexander

Ila Alexander, Purchasing clerk, Electro-Mechanical:

I like to read the want ads. I am not always interested in buying, but I enjoy seeing what they have for sale. I guess it is the shopper in me.

All Personnel Eligible for Keg Tourney

Northrop Corporation's 16th annual Christmas Bowling Tournament has been set for Dec. 27 and 28 at Missile Bowl, Gardena.

Squad times on Dec. 27 are 11:30 a.m., 2 and 4:30 p.m. On Dec. 28 they are at 10 a.m., 12:30 and 3 p.m.

Open to keggers from all Northrop divisions and facilities, the big annual tournament will feature men's and women's singles and doubles events, plus mixed doubles.

Personnel Activities offices now have entry forms. They must be submitted by Dec. 12, according to Elva Heald and Jerry Alexander of the Aircraft Division, Dorothy Baldwin and Dick Wheelock of Electronics Division who are heading tournament arrangements.

This is the one tournament of the year that brings together pin-knocking enthusiasts from all divisions to decide the mythical Northrop champions. It is held during the long yearend vacation period to enable a maximum number of participants to take part.

GOLF TOURNEY

Northrop Golf Club will play the Quail Lake Course at Morena Dec. 13 with the first tee time set for 8:30 a.m.

Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

Falcon, 1964 convt., 260 V-8, r/h, auto. trans., new top & window, \$850. 213-581-5208. A

Ford, 1965 Galaxie 500, 2-dr. h/top, auto. trans., p/s, a/c, \$1,000. 213-757-1218. A

Comet, 1964 Cyclone, 289 V-8 eng., 4-bbl. carb., 4-spd., \$800. 714-534-2277. A

Pontiac, 1965 Catalina, a/c, \$1,150. 213-326-7084. A

Pontiac, 1964 LeMans convt., 6 cyl., \$600. 213-241-0326. A

Scout, 1962, 4-whl. drive, travel top, hubs, r/h, \$950. 714-638-4623. A

Porsche, 1968 911S, many extras, \$6,000. 714-547-0411. A

Dodge, 1966 Coronet 500, 2-dr. h/top, 383 cu. in. eng., p/s, auto. trans., \$1,495. 213-325-9875. A

Station Wagon, 1967 VW Squareback, radio, \$1,550. 213-430-7388. A

Pontiac, 1967 GTO, auto. trans., p/s, p/b, \$1,700. 213-644-6966. A

Ford, 1957, 2-dr., r/h, rebilt. 312 cu. in. eng., \$275. 213-679-4464. A

Station Wagon, 1968 Chevelle Malibu, a/c, p/s, \$2,300. 213-431-7696. A

M6-TD, 1950, recently rebilt. TF 150 cc eng. & trans., \$995. 805-648-2402. A

Dodge, 1969 Dart Swinger 340, 10,000 mi., Torque Flight, p/s, under warranty, \$2,450. 714-826-4678. A

T-Bird, 1967, 2-dr., full power, fact. air, stereo tape, speed control, \$2,850. 805-527-1824. A

Mercury, 1967 Cougar, \$2,150. 213-670-8453. A

Ford, 1961 Galaxie, r/h, tape player, \$395. 213-371-1941. A

Station Wagon, 1956 Chevrolet, 8 cyl., \$275. 213-671-2401. A

Pickup, 1950 Chevrolet, \$250. 213-754-7947. A

Datsun, 1967 1600 convt., need minor body repair, \$1,000. 213-379-7716. A

Ford, 1963 Galaxie XL 500, 2-dr., auto., \$600. 213-677-6375. A

Toyota, 1967, 4-dr., AM-FM radio, & auto., \$1,100. 213-573-1760. A

Camper, 15' Aristocrat Lo-Liner, w/w cpts., motorcycle rack, \$1,100. 213-326-3626. A

Pickup Truck, 1958 Chevrolet, ¾-ton, 8' bed, 4-spd. stick, \$450. 213-326-7480, 714-532-2723. A

Pontiac, 1966 GTO, 4-spd., p/s, 3-2" set-up, new eng., \$1,500. 213-325-9824. A

Pontiac, 1968 GTO, 4-spd., r/h, a/c, p/s, \$2,495. 213-644-4657. A

Pontiac, 1960 Ventura, 421 cu. in., tri-power, Borg Warner 4-spd., \$250. 213-379-4672. A

Ford, 1965 Galaxie 500, auto. trans., p/s, AM-FM radio, \$1,200. 714-968-5343. A

Fiat, 1969 Spider, \$1,895 bid; Cadillac, 1967 De Ville convt., \$3,250 bid; Chevrolet, 1965 Impala S.S., 2-dr. h/top, \$895 bid. Credit Union ext. 1117. A

MGB, 1967 G.T., wire whls., 26,000 mi., \$2,150. 714-644-2887, 213-329-2926. A

Pickup, Ford, 1966, ½-ton, 8' bed, \$1,150. 213-327-6080. A

Rambler American, 4-dr. sedan, r/h, stand. trans., \$550. 213-391-7781. A

Ford, 1957, all power, \$275. 213-759-8479. A

Pontiac, 1967 LeMans, 2-dr. h/top, p/s, p/b, 36,000 mi., \$2,195. 213-329-2773. A

Pickup Truck, ½-ton, 1957 Dodge, 6 cyl., hvy. duty brakes, \$395. 213-376-6677. A

Chevrolet, 2-dr., V-8, r/h, auto. trans., \$125. 213-868-1293. A

Opel Kadett, 1966, 43,000 mi., r/h, \$850. 213-776-0393. A

Pontiac, 1965 Bonneville, 4-dr., r/h, a/c, \$1,150. 714-847-1598. A

Valiant, 1963 Signet, r/h, 2-dr. h/top, \$450. 714-842-5961. A

Household Items For Sale

Oven & range, 1968 Gaffers & Sattler, copertone, 4-burner w/timer, \$85. 213-860-6244. A

Occasional Chairs, 1 rust, 1 olive & gold, walnut trim, \$40. ea. or \$75. 714-524-2527. A

Washer, Kenmore Deluxe, copertone, matching gas dryer, \$125 ea. 213-831-1090. B

Range, Wedgewood, 4-burner, center grill, \$60. 213-379-2980. B

Dining Room Set, mahogany, Duncan Phyfe, 6 chairs, table & buffet, \$50. 213-831-1745. A

Sofa, 7½' 3-cushion, fern green, Drexel, 6 mos. old, \$100. 213-542-5664. B

Rotisserie, Farberware Open Hearth & cover, \$34. 213-755-7166. B

Washer-Dryer Comb., Lady Kenmore, 2½ yrs. old, all elec., \$185. 213-679-5243. B

Dinette Set, Virtue Bros., formica top, red chairs, \$45. 213-675-0579. B

Bar Stools, 2 30" deluxe, black naugahyde, \$40 ea. 213-373-2512. B

Household Items For Sale

Crib, mattress, \$15. 213-374-5133. B

Range, O'Keefe & Merritt, \$25. 213-675-6585. B

Stove, 30", elec. rotisserie, copertone, 6 yrs. old, \$70. 213-375-7701. B

Dinette Set, wrought iron, 4 chairs, black, white & grey, \$30. 714-838-7161. B

Refrigerator, Frigidaire, 9 cu. ft., crosstop freezer, apt. size, \$50. 213-644-1337. B

Freezer, Coldspot, 17 cu. ft. chest-type, 4 yrs. old, \$175. 714-826-2209. B

Miscellaneous For Sale

Bicycle, men's 10-spd. Derailuer, \$45. 213-374-8645. C

Slide Projector, Bell & Howell Tandem-Matic professional, 35 mm., 6 extra slide trays, \$85. 213-672-1491. C

Dress, full length formal, size 7, aqua, worn once, \$15. 213-327-4585. C

Home, custom-built 2-story, near schools & markets, swim pool, patio & dressing room, detached 2-car gar. & workshop, \$32,500. 213-632-2642. C

Pups, German shepherds, AKC top pedigree, females, blk. & gold, \$45. 805-495-1241. C

Mini-Bike, Bonanza, \$159. 213-254-5682. C

Stereo, 5' Mediterranean style, 6 mos. old, lge. storage space, \$300. 714-524-7242. C

Lawnmower, 20", Craftsman, 2½ h.p., \$45. 213-373-4817. C

Clarinet, La Sett, \$60. 213-532-7846. C

Bicycle, girl's 26", \$15. 213-676-2803. C

Movie Camera, DeLur, w/zoom lens, projector, editor & screen, 8mm, \$25. 714-837-6067. C

TV, b.&w. 25" Satchel Carlson, \$100. 213-675-6020. C

Piano, upright, bench, \$110. 213-596-0019. C

Lot, 72'x100', 400 Acre Canyon Lake, membership community, ½ block from boat launch area, \$7,000. 213-326-5566. C

Drum Set, Ludwig Super Classic, 4 drums, 4 cymbals, stool, stands & sticks, \$475. 213-696-3467. C

Aquarium, 5 gal., hood, lights, filter, pump & gravel, \$15. 213-676-7269. C

Pool Table, & access. 4'x8', \$75. 213-390-3994. C

House, 3-bdrm., 1¼ bath, bltins, cpts., dps., b/yard walled, on hill slope in Torrance, \$27,000. 213-372-3373. C

Motorcycle, Yamaha 100 cc trailmaster, \$220. 213-370-7130. C

House, 4-bdrm., fam. rm., ocean view, 5 min. to Northrop P.V., \$44,950. 213-373-1395. C

Mini-Bike, Bonanza, 2½ h.p., \$75. 213-377-5414. C

Reloading Dies, Lachmiller, 7/8"-14thd., for .38 Special, 30-06, 220 Swift, \$7.50 set. 805-495-7550. C

Ski Boots, Katsinger Model Golden K, 5 buckle, used 1 season, men's size 8½, \$40. 714-847-2648. C

Pups, mixed beagle & dachshund, 7 wks. old, \$10. 213-644-4713. C

Drum Set, 4-pc. St. George, snare, side tom, floor tom, bass w/floor cymbal & high hat, \$100. 213-939-3526. C

Boat, 14' Wizard, 45 h.p. Sears eng., trailer, extras, \$825. 213-679-4400, 213-675-3830. C

Bicycle, boy's, full size, hand brakes & basket, \$15. 714-638-4363. C

Bicycle, boy's 24" Schwinn, 10-spd. Derailuer, \$50. 213-377-5897. C

Piano, spinet, limed oak winter, practiciano pedal, \$375. 213-670-3626. C

House, 3-bdrm., cpts., dps., Hollypark tract, \$27,500. 213-321-5428. C

Wheels, Mickey Thompson, never used, forged alum. center & chromed steel rim, 14" & 3 15", \$20 ea. 213-675-3061. C

Wheels, 5 15" w/trim & baby half moons, \$20. 213-375-0449. C

Movie Camera, 8 mm Tower turret, elec. eye, Sylvania sun gun, \$25. 213-635-6134. C

Desk, walnut, 3'x5', 6 locking drwrs., incl. filing drwr., \$25. 213-832-1684. C

Runabout, 10' Glasspar, covered front deck, \$195. 213-377-4569. C

Rocket, Vulkire, \$13. 213-677-5805. C

Land, 5 acres, next to subdivision, 5% dn., \$8,000. 714-846-2627. C

Units, 6, owner will finance, Crenshaw & 149th, \$59,500. 213-675-1776. C

Bicycle, boy's 20" AMF Sting Ray, hand brakes, 3-spd. gear stick, \$25. 805-495-5147. C

Rings, wedding & engagement, white gold .36 carat diamond, \$225. 213-372-7851. C

Boat, 1963 31' Chris Craft Cavalier, S.S. radio, sleeps 6, \$8,500. 213-371-1046. C

Guitar, Ventura, hollow body, elec., 2 pickups, other access., \$125. 213-865-0197. C

Movie Camera, DeLur Super 8 reflex, zoom lens, pistol grip & trigger lock, carrying case, \$65. 213-324-1081. C

Tape Recorder, portable, monaural, auto. reverse, \$50. 714-523-2495. C

Home, Laguna Beach, ocean view, 4-bdrm., 2 baths, formal living, dining & fam. rms., f/place, cpts., dps., many extras, \$35,500. 714-548-8963, 714-642-9214. C

Mink Stole, silver blue, \$250. 213-347-4599. C

Lots, ocean view, 2 Palos Verdes Ests., ½-acre improved, & 7/8-acre unimproved, \$32,500 ea. 213-831-4496, 213-943-2893. C

Thermal Massager, Casco, king size, 8-way control, \$25. 213-378-0477. C

Lot, 3-acre bldg. site, Woodland Hills & Westlake Village, horses o.k., many trees, low down, \$28,500. 213-783-8271. C

Miscellaneous For Sale

Dozer, TD-9 International, new tracks, rails & pins, 9'6" hydraulic blade, \$3,000. 714-595-3013. C

Rifle, Winchester Model 94, 30/30, \$65. 805-495-9383. C

Motorcycle, 250 cc BSA, \$325. 213-675-4038. C

Motorcycle, 1968 Honda 90, 1,172 mi., \$275. 714-985-1605. C

Slide Projector, Argus 570 Electromatic, remote control w/bltin pointer light, \$90. 213-644-3135. C

Radio-Phonograph, hi-fi, table model, \$33. 213-772-4446, ext. 240. C

Carburetor, 2 Carter AFB, 4 bbl., & intake manifold for small block Chev., \$40 or sell sep. 213-641-1249. C

Lot, Salton City, near sea, 10% dn., 6½% int., \$4,800. 213-384-0918. C

Skates, Rink Rollar, girl's, white, size 2 & 5, w/case, \$12 & \$15. 213-861-6404. C

Christmas Tree, Scotch pine bottle brush, 7' tall, 1 yr. old, \$25. 213-541-1027. C

Train Set, N-gauge, eng., 9 cars, elec. switches, many access., never used, over 50' of track, on 4'x8'x6" layout, \$60. 213-679-6610. C

Camera, Polaroid, model 100, \$50. 213-372-9752. C

Scuba Regulator, U.S. Diver's Aqua Master, 2-hose, 2-stage, \$50. 213-373-3128. C

Movie Projector, Keystone Model 109, 8 mm, bltin splicer, \$30. 714-828-2857. C

Pups, Irish setter, 7 wks. old, AKC reg., females \$100, males \$125. 213-328-2568. C

Communications Receiver, 1968 Hallicrafters SX-130 w/spkr., \$110. 213-375-8834. C

Acreage, 5 acres, Antelope Valley, \$59 dn., \$59 mo., no. int., \$5,900. 213-378-1026. C

Bouncing Horse, Wonder, \$10. 213-425-0322. C

Trailer, 4 x 7 x 2 ft., 16" wheels, \$63. 213-372-1386. C

Slide Projector, Argus 300, 6 metal storage trays, \$12. 714-528-3517. C

Sailing Dinghy, Sabot, Stan Miller fiberglass hull, \$215. 714-539-2098. C

Top Coats, 2 men's, \$15 ea. 213-833-7819. C

Mobile Home, 12' x 55', 1 lge. bdrm., cpts., dps., awnings, skirts, kitchen furn., extras, \$5,900. 213-320-2920, 10 a.m.-3 p.m. C

Vacuum Cleaner, Kenmore canister, w/ attachments, \$12. 213-671-0925. C

Boat, 13' runabout, 28 h.p., 1964 Sears motor, 2-whl. trailer, \$350. Box 2301. C

Rifle, .243 Sako, hvy. barrel, \$150. 213-391-8750, 213-397-6662. C

Wanted to Buy

Auto, 4-spd. stick shift, will pay up to \$300. 213-376-3539. D

China Cabinet, glass doors, black finish. 213-375-4047. D

Bicycle, boy's 10-spd., must be in excellent condition. 213-378-2790. D

Juicer, used Acme. 213-327-8927. D

Boat, 12' aluminum, pay \$90. 213-377-5107. D

Coats, girls' sizes, 4, 6, 8, 2 size 10, good condition. 213-676-3050. D

Erector Set, large, Gilbert. 213-597-5232. D

Transmission, for 1953 Buick, Dynaflo, in good condition. 213-678-6083. D

Free (To Be Given Away)

Pups, part boxer. 213-641-5584. F

Kitten, female, black & white, half grown. 213-672-8629. F

Rentals Offered

Apts, Manhattan Bch., steps to beach, cpts., dps., bltins, f/place, gas, water pd., \$250. 213-673-2741. G

Apt, unfurn., deluxe 2-bdrm., cpts., dps., oven & range, bar, bath, pool, adults only, no pets, \$150. 213-325-2512. G

Garage, 2-car, to be used for storage. N. Long Bch., \$20. mo. 213-941-6953. G

House, 2-bdrm., unfurn., 2 rooms off gar., new bath, children & pets welcome, fenced yd., close to Aircraft Div., Haw., \$175. 213-676-3119. G

Apt, 2-bdrm., 1 bath, unfurn., stove, refrig. avail., 2 blocks from Torrance Beach, \$170 mo. 213-378-0565. G

Cabin, Lake Arrowhead, 3-bdrm., 2 baths, sleeps 10, completely furn., \$150 wk., \$75 w/end. 714-528-2303. G

Apt, 1-bdrm., furn., adults, no pets, 7 min. from Northrop, \$105 mo. 213-677-9492, 213-672-8516. G

Condominium, 1-bdrm. unit, Mammoth Lakes, accommodates 4, living rm. w/fireplace, complete kitchen, heated pool & sauna, w/ends & holidays, \$25 night for 2, \$31 for 4. 213-375-2622. G

Cabins, Idyllwild, 1 & 2 bdrm., f/place, stream, patios, \$25 to \$35 wk. end; \$50 to \$90 per wk. 213-868-8040. G

Cabin, Big Bear Lake, \$30 w/end. 213-867-0662. G

Home, 3-bdrm., 2 baths, dining area, cpts., dps., detached 2-car gar., enc. b/yard, Torrance, avail. Jan. 1, \$250. 213-371-6328. G

Rentals Wanted

Apt, 1-bdrm., unfurn., or small house, west of Prairie Ave., walking distance to Plant One. 213-675-8327. H

Apt, 1-bdrm., furn., or small house, within walking distance of Northrop. Box 2302. H

Child Care

Child Care Offered, Hawthorne area, infants or toddlers. 213-644-6372. I

Lost

Dog, white German shepherd, on Sept. 26, reward. 213-324-4186. J

Personals

Want roommate to share expenses, my home near Avalon & San Diego Fwy. 213-675-1982. L

On behalf of Gerald Rowland & his family, I wish to extend their everlasting gratitude for the donations of blood from so many people at Northrop. BETTY PENNER. L

I wish to thank all my friends at Northrop for their kindness during my recent illness. ESTY STACY. L

We wish to express our deepest appreciation to all our Northrop friends for the flowers & thoughtful expressions of sympathy in the loss of our beloved husband, father, & brother, Bud Kinsey. THE DUWAYNE (BUD) KINSEY FAMILY. L

For Sale or Trade

Apt. House, 4 units, in P.V. area, \$20,000 for equity, bal. \$32,000 or trade equity for property in No. Calif. or So. Oregon. 213-677-8797. M

Rides and Riders

Rides Wanted

8 a.m. — 4:45 p.m.

Want to join 4-man air commuter club, Van Nuys Airport to Hawthorne Airport. S. Locust, Aircraft ext. 2061, 213-786-2698.

For Sale or Trade

Jaguar, 1963 XKE roadster, assume \$800 loan, will take \$500 for equity or trade for good Volkswagen. 213-830-3731. M

Corvette, 1960 283, \$1000 or trade for down on mountain property. 213-863-2977. M

Sander, dual pad in line, air powered, Sundstrand mod. 1000, \$35 or trade for good .22 rifle. 213-941-1865. M

Stereo Console, Hoffman, w/Garrard SL 55 record player, \$100 or trade for man's & woman's bicycles. 213-675-8673. M

Drafting Machine, Bruning model 2699, \$75 or trade for woman's bicycle or power saw. 213-242-2957. M



THEY HAVE BEEN MARRIED 72 YEARS
Mr. and Mrs. Rupert Rinehart are parents of Richard Rinehart.

Northrop 'Parents' Mark 72nd Wedding Anniversary

The parents of Richard Rinehart, Aircraft Division Cost Estimating, have just celebrated their 72nd wedding anniversary. The father, Rupert Rinehart, is 91, and his wife, Gertrude is 88. The two were married in Kirksville, Missouri, in 1897, where they have lived ever since.

Mr. Rinehart recalls that he began work at 10 years old delivering newspapers for five cents a day. His boss decided this was too much and offered to pay him in candy—which he accepted. Later Mr. Rinehart established a news agency which he still operates.

Mrs. Rinehart recalls that her future husband first saw her at a church social and got her uncle to introduce them. In 1951 she was chosen "Missouri Mother of the Year," for "her guidance and diligent efforts in the rearing of seven children who have received national acclaim and recognition

THEATRE PARTY

Tickets for the first all-Northrop theatre party of 1970 are now available at discount prices at all Personnel Activities ticket outlets.

The 5 p.m. Jan. 31 show features Marooned, a space-oriented production starring Gregory Peck. It will be presented at the Egyptian Theatre, Hollywood. Loge seats, 730 of them, that normally sell for \$3.50 each are available for \$2.80.

in a variety of professions."

The occasion of their 72nd anniversary was a quiet one. They remained at home and received phone calls from their children.

While both are still active in civic affairs, they say their principal interest still remains their children, their 10 grandchildren and 14 great-grandchildren.

747 SUCCESSFUL IN FLUTTER TESTS

A Boeing 747 jetliner has successfully completed a series of "shakedown" flights of an unusual nature.

Shakedown in this case consisted of a series of tests in which the jetliner's airframe was shaken many times in flight to prove it free of flutter and safe for passengers. The flight tests were conducted at a variety of speeds, altitudes and airplane loadings.

Flutter—a self-sustaining vibration of the airframe—was started by abruptly moving the 747's regular flight controls or actuating specially installed vanes on wing tips. The vibrations, ranging from 1 to 20 cycles a second, were then allowed to diminish on their own as they should.

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NORTHROP NEWS

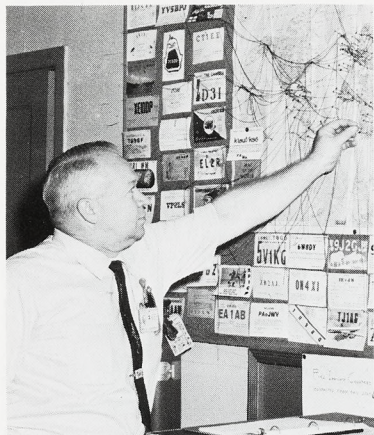
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PAUL STAUDENMAYER

Two Help School Club

Two Northrop employees, Paul Staudenmayer and Marty Gregor, are assisting the Anaheim Radio Club in setting up a special radio station and code classes for students of Katella High School, Anaheim.

In addition to membership in the NRC Radio Club, both Mr. Staudenmayer and Mr. Gregor are members of the Anaheim group. Mr. Gregor is a member of the executive board and Mr. Staudenmayer is corresponding secretary.

The club, at the request of the school, is recommending equipment, helping set up the station, and is conducting code and theory classes.

NAS 2070—Introduced

(Continued from page 1)

NAS-2070 has features that automatically help teach its own operation. An operator has but to press a button and the display screen reveals an index that shows each function that the system performs as well as the actions required to perform them.

Fleet Prices on Autos Available

New cars at fleet prices are available through the Fleet Discount Purchase Plan administered by Personnel Activities.

The plan, which is subscribed to by a number of leading automobile dealers, is a referral plan which offers substantial discounts to purchasers.

Personnel Activities maintains a price list for automobiles and accessories available under the plan. This price is that agreed upon by the dealer when he joined the plan and is not subject to negotiation, since the fleet list price is well below the sticker price.

Procedures Are Easy

Allowances for trade-ins are not controlled by the fleet price list and are subject to horse-trading.

Procedure for taking advantage of fleet purchase savings is as follows:

- Check price list and participating dealers. List is available at Personnel Activities.
- Contact dealer to see if the model you want is in stock.
- Then obtain dealer's card from Personnel Activities. The card will list the name of the dealer representative to see. Do not contact salesman. Call this representative for an appointment. He will have a duplicate of the price list you consulted at Personnel Activities.
- Take your old car in for an appraisal for trade in.

Charters Presented To Junior Achievers

Prime Enterprises and Topco, the two Junior Achievement companies counselled by advisors from the Electro-Mechanical Division, have received their company charters from Don McInnis, manager, Operations.

The Junior Achievement program teaches the principles of free enterprise by helping high school students to form companies, manufacture and sell a product during the school year. Financing is done through sale of stock as in a regular corporation. This is the tenth year that Northrop has supported the Junior Achievement program.

DURANT APPOINTED

Donald Durant has been appointed manager, Compensation and Personnel Administration for the Electro-Mechanical Division. Mr. Durant succeeds G. F. Wajda who resigned to accept the position of Personnel manager of Xerox's Medical Diagnostic Operations.

In his new position, Mr. Durant will be responsible for Compensation, Personnel Administration, and Personnel Records activities. Mr. Durant, who holds a B. S. degree from UCLA, has been with Northrop since 1962.

Receiving the charter for the Prime Enterprises company was Akar Magan, president. He was accompanied by Grant Freeland vice president, sales; Bill White, vice president, manufacturing; Douglas Mullen, treasurer; and Delna Waggoner, corporate secretary.

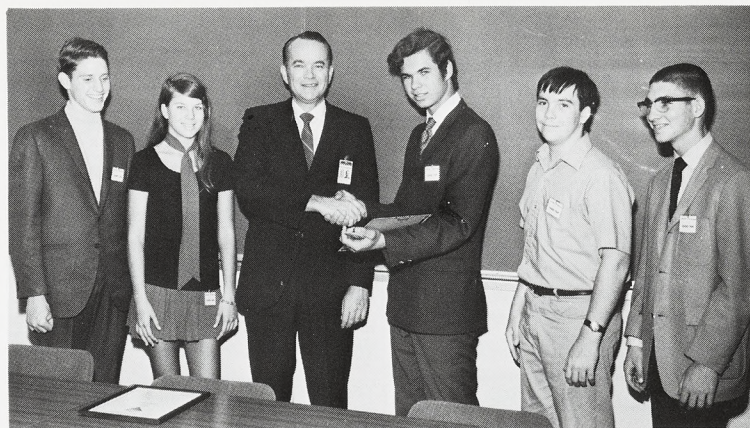
The Topco company was represented by Kurt Yonker, president; Linda Kroll, treasurer; and Aleta Koehler, corporate secretary.

Following charter presentations, the young business men and women heard talks by Bob Norton, Doug Leavenworth, Jack Blonk and Cy Seeley, and then toured engineering, office and production facilities. They were accompanied by their Northrop management advisors, Fred Eckstein for the Prime Enterprises company and Lou Albertson for Topco.

Many Advisors Assist

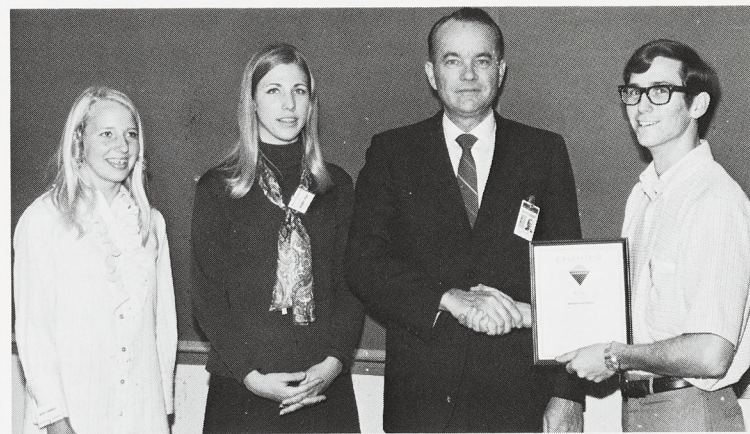
Other advisors are, Herb Felix, sales; Bill Gale, production; and John Turner, finance for Prime. Topco advisors are Earl Chambers, sales; Tom Maxwell, production; Jim Hock, finance. Bob Varner, a veteran of the Junior Achievement program, serves as alternate for both Northrop counselled companies. Ken Terry, Industrial Relations, is Northrop's coordinator for the Junior Achievement program.

Both companies have selected Apollo 11 key chains as their initial product. Plans are under way to add additional products as the companies develop.



STARTING IN BUSINESS

Don McInnis, center above and below, presents charters to two Northrop counselled Junior Achievement companies. Above he is with Douglas Mullen, Delna Waggoner, Akar Magan, Bill White and Grant Freeland. Below, he presents the charter to Linda Kroll, Aleta Koehler and Kurt Yonker.



New Committee Elected To Guide NRC for 1970

A new executive committee to guide NRC activities at the Electro-Mechanical Division was elected at a recent meeting.

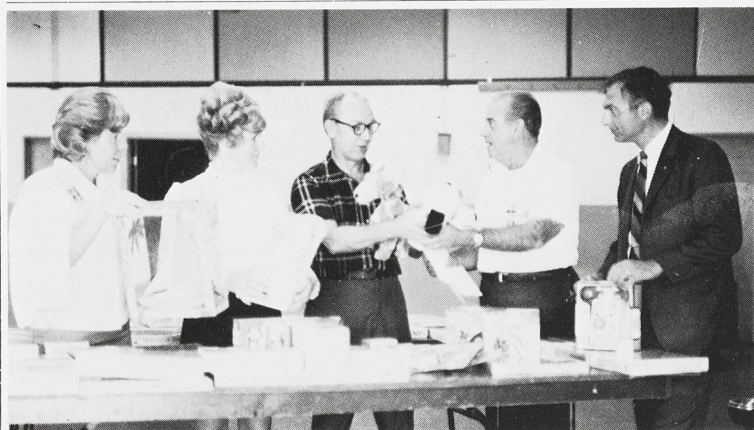
New club officers are Randy Lee, president; Art Bowser, vice president; Donna Robison, secretary; Al Fredette, treasurer; and

Bill Kieffer, sergeant-at-arms. Vaughn Peak is past president.

The executive committee sets policies for the recreation clubs, arranges and approves finances, and assists commissioners in planning events.

Following his election, the new president praised the work of the previous executive committee. "The 1969 committee has really given us a mark to shoot at. Vaughn Peak as president, Marv Wiebe, vice president; Gaylord Miller, treasurer; Donna Robison, secretary; Don Taylor, sergeant-at-arms; and Bill Kieffer, past president, really did a great job keeping the NRC moving here at the Electro-Mechanical Division," he said.

Mr. Lee added that the sole purpose of the NRC clubs is to serve their members. "Therefore we are always open to suggestions for improving our clubs and their functions. Also, we welcome ideas for new clubs. However, there is nothing we can do unless we hear from you. Let us know what you want and your executive committee will get on the ball."



SHOPPING FOR THE PARTY

An NRC committee shops for presents for the coming Children's Christmas Party. From left are Norma Hoag, Donna Robison, Chet Guzinski, Randy Lee with Ernie Cowell of the Pul-Wal Company. Northrop personnel can also buy toys at wholesale or below from Pul-Wal. Dec. 12 from 5 to 9 p.m., Dec. 13 and Dec. 14 from 9 a.m. to 5 p.m. have been set aside for shopping by Electro-Mechanical Division personnel. Those taking advantage of this annual offer should have their Northrop identification.

Yearend Holiday Will Be Among Longest to Date

Electro-Mechanical Division personnel will enjoy one of the longest paid yearend holidays in the company's history this year.

The holiday, which is in addition to the company's regular liberal vacation policy, will extend for 12 days. It will begin at the close of work shifts on Dec. 23 and end at the beginning of shifts on Jan. 5.

The long holiday was arranged by adding to the normal yearend time off the two Northrop "floating" holidays for 1969, plus borrowing one from 1970.

UTILITIES

(Continued from page 1)

said. "The savings made by personnel in Y-12 shows how this program can work. Every light turned off, every machine stopped when not in use, and every faucet turned off tightly adds a few more cents to the total.

"Plant Engineering's utility monitor, Willard Wade, is available to work with any division to seek additional ways to reduce our utilities costs."

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THEY'LL GUIDE NRC FOR 1970

New NRC Executive Committee are, from left, Al Fredette, Art Bowser, Donna Robison, Bill Kieffer, back row. Seated, Vaughn Peak and Randy Lee.

Merry Christmas

NORTHROP NEWS

Northrop Corporation, Beverly Hills, California

Vol. 27, No. 24

December 17, 1969



A Pause To Express Our Thanks

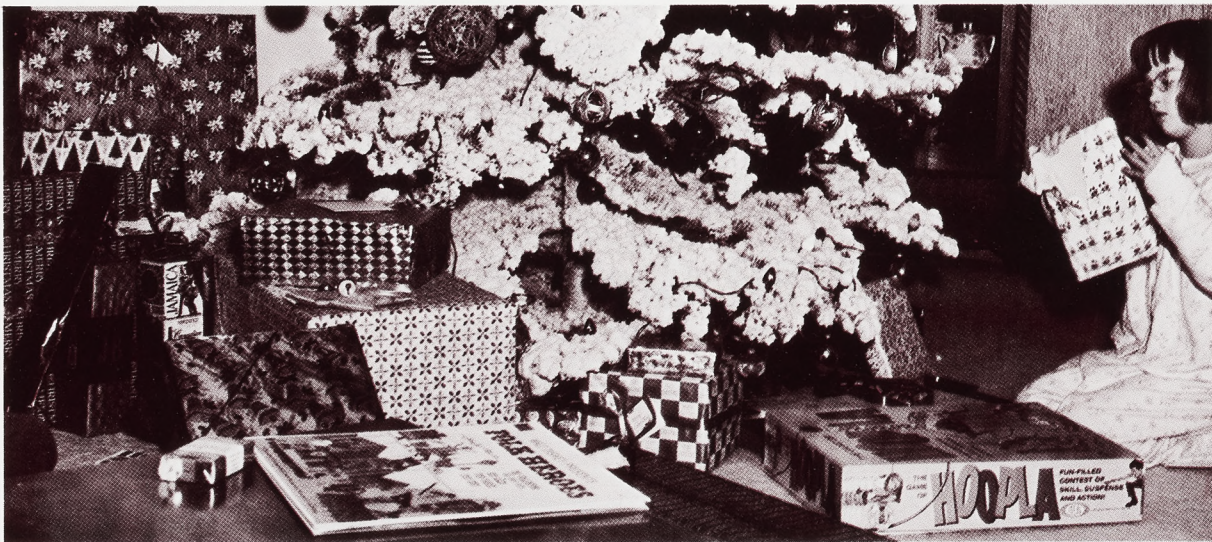
Our Holiday Is...



A Time For Travel



Sun And Fun



Presents Around The Tree For One And All



NORTHROP PARTY

TOYS

SANTA

BOB PECK
MR SCRIBBLE



IT WORKS LIKE THIS
Brian Loo explains NAS 2070 to shareholders.



WE BUILD THE 747 HERE
Ronn Wiggins describes 747 production work.



CONDUCTING ANNUAL MEETING
Northrop President Thomas V. Jones introduces directors.

FINAL '69 ISSUE

Like the majority of other Northrop employees, Northrop News staff members look forward to enjoying the long yearend holiday just ahead. This is the final issue scheduled for 1969.

The first issue of Northrop News for 1970 will be distributed Jan. 21. Deadline for news items and classified ads will be Jan. 13.

Jones Reports Record Earnings, Sales to Northrop Shareholders

Northrop's 30th year in business provided the highest earnings and sales in the company's history. And the outlook for the next decade is promising.

That was the message from Northrop President and Chairman of the Board Thomas V. Jones to 240 shareholders at the company's 30th annual shareholders meeting Dec. 8 in the Hawthorne Memorial Center.

"It was the third year in a row that we had new highs in earnings and sales, and the sixth year in succession in which earnings and sales increased," President Jones said.

Mr. Jones said that on the basis of business now in hand sales and earnings in "each quarter of this year will show an improvement over the same quarter last year."

He noted, "In the first quarter of the new fiscal year (1970) we earned 92 cents per share for the quarter compared with 81 cents per share a year ago."

But the record results did not come easily.

Mr. Jones explained the company "had to contend with the effects of inflation, rising interest rates, higher taxes and constantly stiffer competition."

Northrop products are gaining in reputation for performance beyond contractual requirements and, in many cases, providing an "underrun" in cost, he said.

Looking to the future, Mr. Jones said Northrop's F-5-21 jet fighter plane, now being evaluated by the Air Force and Defense Department, "will contribute to the national objective... to disengage U.S. forces by making it possible for allied countries to defend themselves with equipment operated by their own people."

Non-government contracts, he said, are approaching the 50 per cent goal set by the company.

Key programs in this category include major communications projects in Iran and Puerto Rico and work on the Boeing 747.

Fifty-five 747 shipsets have already been delivered and 146 more are in production.

"We firmly believe that as the 747 goes into operation it will prove to be both economical and profitable and that this will produce further business both for Boeing and Northrop," he said.

However, Northrop's electronics business "may well have the most exciting prospects of growth," he stressed. New business in electronics also is providing follow-on contracts "for a long time to come."

The meeting concluded with a bus tour of Aircraft Division facilities and luncheon.

Three Parties Set This Week

Three Christmas parties for the children of Northrop employees in the Southland come up this week.

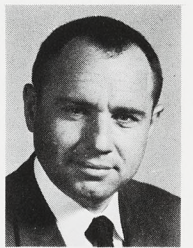
Tomorrow from 6 to 8 p.m. Antelope Valley employees will gather at the Palmdale facility from 6 to 8 p.m. for games, surprises and a visit from Santa Claus.

Saturday Northrop Venturans will meet at the California Lutheran College gym from 11 a.m. to 1 p.m. There will be gifts and entertainment for all.

Sunday will find Electro-Mechanical employees and youngsters converging on the NRC Clubhouse, Fullerton, for an afternoon of fun that begins at noon and ends at 4 p.m. There will be gifts, games and fun for all.

Fred Stevens Elected Fellow By Institute

Frederick Stevens, Northrop vice president—Corporate Diversification, has been elected a Fellow by the board of directors of the Institute of Electrical and Electronics Engineers.



Mr. Stevens

This honor, the highest attainable within the organization, is reserved "to a limited number of individuals each year who have shown evidence of outstanding and extraordinary qualification and experience in the field of electrical and electronics engineering," an announcement noted.

Mr. Stevens has achieved this distinction, the notice said, "for contributions to the inertial and astronomical guidance art."

IEEE Fellowship is conferred by invitation only within an international organization that now includes more than 160,000 members.

Fellow Award Certificates are awarded locally each year with special recognition made at the IEEE banquet.

JPL Awards Top Bonus To Electronics Division

Northrop Electronics Division has received a bonus award for its outstanding work on the Mariner Mars '69 mission. The award, made by JPL, is the largest that

can be made under this contract.

Northrop assisted the JPL in accomplishing detailed design; and performed detailed design, development, manufacture and test of the Mariner spacecraft's engineering mechanics subsystem hardware.

Northrop currently has a proposal pending at JPL to provide 250 man years of systems engineering support for NASA's Viking 1973 Program, which will soft land a scientific package on the red planet's surface.

The Task

If selected to provide the engineering support, it is anticipated that Northrop would again assist JPL in the design, manufacture and test of the engineering mechanics subsystem for the Viking's Orbiter System.

The Orbiter, after ejecting the landing capsule to the planet's surface, will orbit Mars sending back atmospheric information to earth.

Northrop Friends Give Wheelchair Lift to Youngster

Don Buchanan, a 20-year-old paralyzed youth, will be able to pay Christmas visits this year, thanks to the help from friends at Northrop.

Don was injured in a surfing accident in 1966 and has been able to use only one hand since that time. He is confined to a wheelchair. Friends at Northrop, to enable him to lift himself into his family van, provided an hydraulic lift like the one featured in the TV program, "Ironside." Don can now accompany his mother on trips. Before they had to wait for help to lift him and the wheelchair into the van.

Despite the seriousness of his condition, the young man has not lost his faith and hope, according to Nick Ranill of Materiel Estimating. "He has learned to type by holding a stick in his mouth and completed high school. Told that no one ever walks again after an accident like he had, Don replied, 'I will!'"



GIANT STEP Grand Award Winners

Christmas arrived early this year for a group of employees winning major awards in Northrop's GIANT STEP Program which ended this month.

Charles Martz of the Aircraft Division drove home a new 1970 Ford Maverick. Lowell A. Lyle of Ventura Division won \$1,000 cash. Electro-Mechanical's Don C. Koehler won an all-expense-paid vacation for two in Hawaii.

These are the grand prize winners of GIANT STEP.

GIANT STEP was a major cost reduction program offering participating employees an opportunity to win special awards for cost-cutting ideas that were also eligible for normal cash awards through Northrop's Employee Suggestion Award Plan. It was especially applicable to the extensive work being done by Northrop on the Boeing 747 jetliner program.

Three major Northrop divisions in California—Aircraft, Electro-Mechanical and Ventura—took part in GIANT STEP. Each division conducted its own program, including the selection

of individual winners.

Ventura Division and the Aircraft Division made each acceptable Employee Suggestion submitted eligible for drawings held for prizes at regular intervals throughout the program, including grand prizes as its finale. Electro-Mechanical Division based its grand prize on the cost savings anticipated from the top winner, although regular drawings were held at intervals in which those who had submitted suggestions were eligible.

The Aircraft Division has also awarded expense-paid trips to Seattle, Wash. and a visit to the Boeing 747 assembly line to 10 employees in the final drawing. Scheduled to make the trip Jan. 8 are James Shaw, Jimmie Garcia, John Carter, Charles Pulliam, Clifford Laney, Ray Van Orden, Michael Erstamer, Thelma Pierce, Louis Zuccaro and Eugene Jacobsen.

Five others, Richard Parrish, Willie Wilson, Roger Ragland, Ronald White and Beverly Blake were selected to receive \$100 U.S. Savings Bonds.

OUR COVER



BOB PECK, Electro-Mechanical Division graphic artist, provided the special Christmas border. Mr. Peck, also known for his unique technique as "Mr. Scribble," is a 15-year Northrop employee. **THANKS**—The Dave Saldana family offers thanks at holiday meal. Mr. Saldana is a photographer at the Aircraft Division. **SUN**—Christmas in California means poolside fun for Debbie Reinisch, 18, daughter of Northrop Data Processing's Betty Reinisch stationed at the Ventura Division. **TRAVEL**—Ron Grishaber, of the Electro-Mechanical Division, decorates his camper before holiday travel with his family. **GIFTS, TOO**—Wendy Oliver, daughter of Dale Oliver, Electronics Division, exemplifies favorite time for children.

Families Looking Forward to Long Yearend Holiday

Final Push in Progress to Assure Maximum Time Off for Northrop Personnel Everywhere

One of the most eagerly awaited times of the year—Northrop Corporation's traditional long holiday vacation—is once again at hand. This unusual benefit, still without precedent in industry, provides Northrop personnel the longest possible period of time off to enjoy the Yuletide season with their families and loved ones.

This year's holiday will be one of the longest on record through the application of "floating holidays" for 1969 and one from 1970. Aircraft, Electronics, Electro-Mechanical, Northrop Corporate Laboratories and Corporate office personnel will begin their 12-day holiday with the close of work shifts Dec. 23. Ventura personnel, who enjoyed a "floating holiday" in conjunction with Thanksgiving, will depart with the close of work shifts Dec. 24. All Northrop facilities will resume normal work schedules Monday, Jan. 5.

Northrop personnel from these organizations on duty at distant points, in the United States and abroad, will gear their holiday periods to those of organizations and installations they serve.

Paymasters serving California facilities promise three paychecks between now and the beginning of the holiday. Each division has announced its paycheck distribution schedule. In addition, paymasters say that Withholding Statements (W-2 Forms) covering wages earned in 1969 that are needed for income tax purposes will be distributed by mid-January.

Little Work Planned

While critical programs will require some Northrop employees to work a portion of the holiday period, workloads of this type are being kept at an absolute minimum to enable the maximum number of people to enjoy the greatest possible amount of free time. Throughout all Northrop facilities employees are now pushing required work through to completion to meet contractual obligations. Some maintenance and construction projects which can be performed best at this time of the year are planned, although these, too, are being held to a minimum.

Northrop Recreation Clubs which like to combine the holidays with their favorite activities have planned a few events. About 90 people will depart on the eve of the holiday season for a group tour of Hawaii. And on Dec. 27-28 the 16th annual all-Northrop Christmas Bowling Tournament will be staged at Missile Bowl, Gardena, to determine mythical Northrop champions.

Hearty golfers will work off some of their holiday "fat" with golf tournaments. Three are scheduled as two-day affairs and all will be held Dec. 29-30. Electro-Mechanical Division par chasers will play at Alta Vista, Placentia, and Los Coyotes, Buena Park. Electronics Division linksmen will tour Brookside Park, Pasadena, and Whittier Narrows, San Gabriel. Aircraft Division personnel have selected Torrey Pines near La Jolla for their big event.

Safety and Security personnel at each facility are once again asking employees to perform a last-minute "lock-up" prior to departing for the holidays. They urge the securing of cabinets, files and desks, the removal of Christmas decorations, the disconnecting of coffee pots, typewriters, adding machines, production machines and all those items of equipment that might pose a potential hazard.

Helping Less Fortunate—A Northrop Tradition

The story of people helping people—of reaching out to assist those less fortunate—is a well-known and loved tradition at Northrop.

By the end of this week, on the eve of the annual Christmas holiday season, this program reaches its apex of activity.

Across the Southland, in neighboring Arizona and Mexico, in sections of Texas and Alabama—wherever Northrop people live, visit or work—the affects of this unusual program will be felt.

For example, well over 100 families will be provided with food, clothing, toys and gifts that will turn what might have been a dismal season into a bright and happy one.

Elsewhere, in numerous hospital wards, homes for the aged, retarded children's homes, remote Indian settlements and Mexican villages, charitable homes and institutions, the spirit of Christmas will be perpetuated through the generosity of Northrop employees.

While the emphasis is naturally on Christmas, it is interesting to note effects of this program are felt the year around. This is be-

cause some unrestricted gifts make it possible for institutions to hold back a part of the bounty for other occasions—birthday parties, ward celebrations, trips and many other activities. Too, there are such needed gifts as dishwashers, washers and dryers for clothes, television sets, games, bicycles and tricycles that can be utilized for years to come.

The Christmas program at Northrop has as many faces as the people who support it. It is, above all, spontaneous and voluntary, only those who wish take part to the extent he or she can afford.

The over-all program is found throughout Northrop facilities. It appears to have grown beyond a tradition to become a heritage, for each new generation of Northrop employees comes forward annually to see it continued.

Working together makes it all possible.

And next week, as Northrop personnel scatter to join their loved ones for the long Northrop yearend holiday, those who have helped to carry this tradition forward once again will take with them a warm feeling, a good feeling.



Christmas Greetings



To the Men and Women of Northrop:

This is the season when our thoughts turn to family and friends along with an assessment of our accomplishments in the year past.

My thoughts include a feeling of deep gratitude and appreciation for the men and women who ARE Northrop, those who have worked so well together through many difficulties to make 1969 the best year in our company's history. I have never been more confident that this same spirit will carry over into 1970 and the challenges which a new year, and a new decade, will bring.

Mrs. Jones joins me in wishing you and your family a very Merry Christmas. May you be blessed with happiness and good fortune throughout the new year.

Thomas V. Jones
President and Chairman

To Aircraft Division Personnel:

Each of us welcome the long holiday season just ahead in a different way.

It is especially meaningful to me for the opportunity to once again express my sincere thanks to each of you for your continued support and dedication to the common goals we share. We have faced many challenges in the past year. Working together, we have met each with marked success. The year ahead promises additional challenges, which I am sure we will master. This is the Northrop tradition.

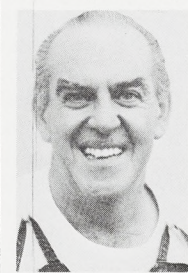
My family joins me in extending to you and your family all the best wishes for a very happy Christmas season and a prosperous year in 1970.

F. W. Lloyd
Corporate Vice President
and General Manager

IT'S FUN BUT—

'Standing In' for Santa Is A Challenge

There is a lot of satisfaction standing in for Santa Claus and having Northrop children whisper their Christmas secrets to you, but the job also has a few problems, according to Randy Lee who has been Santa Clausing at the Electro-Mechanical Division Christmas parties for the past 12 years.



Mr. Lee

There is quite a bit of psychology involved in the job. "You can't afford to ruin Santa's reputation by promising something the child won't find under the Christmas tree," Randy said. "I try to cut my eyes around and watch the parents' expression when junior asks for a new wagon. If the expression is favorable I go all out with a definite promise."

"On the other hand if the request is for something very expensive, I hedge with a maybe. There is no use putting both Dad and Santa on the spot. Especially

when I have to face Dad out in the machine shop when the holiday is over."

Randy got into the Santa Clausing business more years ago than he cares to admit. He was living in the east then and there was a heavy snow before Christmas. Mrs. Lee thought it would be a good touch for Randy, in a Santa suit, to come running down the snow covered hill so the children could see him coming.

Halfway down he lost his balance and rolled the rest of the way. He looked more like a snowman than a Santa Claus when he finally hobbled in with the party presents.

He started playing the jolly old man at Northrop parties in 1957 and has not missed one since.

"After so many years here I get to know and remember a lot of the children," he said. "Then

I can say, 'Hey! you've grown since last year.' It tickles them to be remembered."

Along with the good there are always a few problems at every party. Like the time everything got all wet. "Oh, my goodness," the aghast mother cried. "What'll I do?"

"If you don't know," Randy-Santa replied, "just bring me a fresh diaper and I'll show you. I've had a lot of experience at this sort of thing!"

NEW YEAR'S PARTY

A gala New Year's Eve party is being sponsored for Northrop personnel by the Electronics Division Recreation Club, Dec. 31, at the NRC Clubhouse, Hawthorne.

Reservations, at \$5 per person, are limited to 226 people. No tickets will be sold at the door.

Annual Yearend 'Get-Together' Set by Women

Women employees of the Electro-Mechanical Division are planning a yearend get-together at the Ha'Penny Inn, 14041 Beach Street, Westminster, from 5 to 7 p.m. Dec. 18.

"It is nothing formal," explained Carole Dinnen, secretary to Vice President and General Manager Frank W. Lynch. "It is just a get-together to renew old acquaintances and to make new ones. With offices separated as widely as they are, many of us never get to know each other. Others we know only as voices on the telephone."

Helping Miss Dinnen organize the get-together are Gordon Wilcox, Dorothy Moore, Donna Robinson, Sue Mays, Sefie Garcia, Marian Hodges, Ginger Lahn, Hilde Hildebrand, Sherry Burr.



AFTER A HARD DAY OF 'FUN'
Randy Lee is 'beat' after an afternoon as Santa Claus.

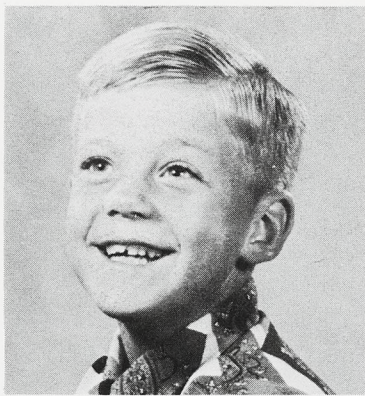
WE ASKED THE CHILDREN—What Does Christmas Mean To You?



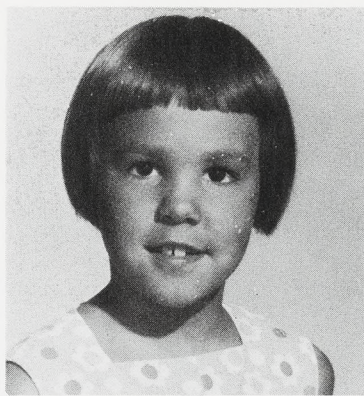
Steven, 3, son of Roger Ouellette, Aircraft: A biiiig tree with lotsa lights. And a star. You go up in a airplane, catch a star, and put it on the tree. And it is a birthday so I get presents.



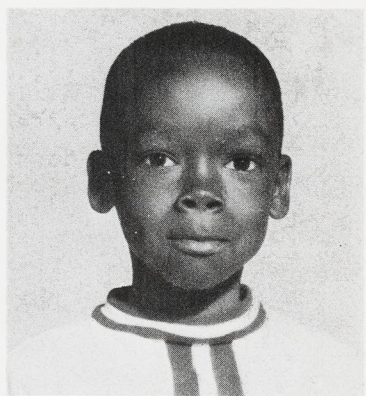
Patricia, 5, daughter of Sefie Garcia, Electro-Mechanical: It means I'm going to have a beautiful Cissy that has beautiful hair—popcorn machine, and I'll have a Suzy maker and another thing—earrings, necklace, rings and a bracelet and some makeup! 'Cause I don't have any makeup.



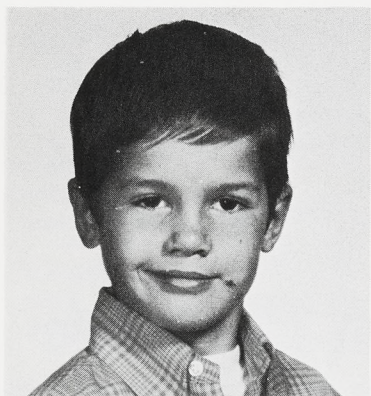
Edward, 8, son of Bernie Davis, Electronics: Christmas means a lot to me because it's a fun holiday with two weeks out of school, lots of surprises and chances to visit people.



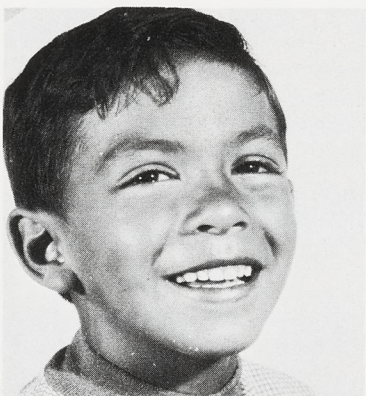
Sandra, 9, daughter of Fred Young, Ventura: Getting a lot of presents, decorating trees and doing lots of shopping. That's all I can think of.



Shawn, 6, son of Dolores Davis, Northrop Corporate Laboratories: Getting lots of toys and gifts, and wondering how Santa will come down the chimney with all the toys I have asked for. I wonder if the reindeer will be able to pull Santa and all my toys?



Troy, 6, son of Linda Gilmore, Electronics: Santa Claus, presents, toys, and Christmas tree.



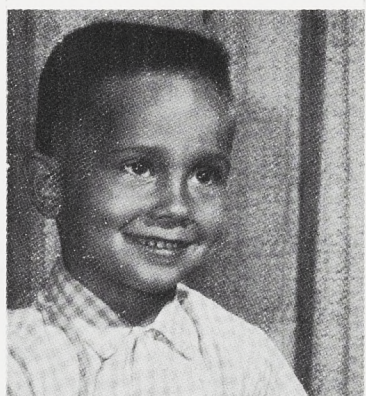
John, 7, son of Mona Elkin, Corporate office: Fun. Happiness. Brings laughter, games and lots of presents.



Michelle, 6, daughter of Etola Burwell, Aircraft: It's the happiest day of the year and it means you get lots of toys you want, and don't forget its Baby Jesus' birthday, and I might get a new bicycle.



Gene, 10, son of Loy Pennington, Electro-Mechanical: Christmas means presents, getting to go places and thanking who ever got your presents.



Mark, 7, son of Harvey Berry, Ventura: Seeing Santa Claus. And at school we sing Christmas carols. I like that.

The 'Smiling Dogs of Christmas' Always Spread Cheer

"On Treska, on Kara, on Tymir and Nika! Hey Rabochi, hey Zausca, hey Khovanchina!"

Those were not the recent commands of Santa to his corsairs but of Mrs. Lloyd Bristol to her "sammys." Mrs. Bristol, a Ventura Division structures engineer, has been dogsledding for 22 years through snow and on wheels.

During this time her Samoyeds—"the smiling dogs of Christmas"—have won dogsledding events and individual honors as show dogs. But, more than that, they have been movie and TV actors, have appeared on numerous TV commercials and at hundreds of outdoor and indoor shows, parades, exhibits and stadiums.

Big Lift

Last Christmas, for the 15th consecutive year, Mrs. Bristol's sammys delivered Santa Claus. They have appeared for hundreds of crippled children at the Crippled Children's Association home in Woodland Hills.

"It takes time to groom them and get them ready for a show," says Mrs. Bristol, "but the crippled children love to see us come, and I wouldn't miss doing it for anything."

Mrs. Bristol is too busy with

THEATRE PARTY

Northrop ticket outlets are offering discount tickets for the first NRC-sponsored theatre party of 1970 to be held at 5 p.m. Jan. 31 at the Egyptian Theatre, Hollywood.

Regular \$3.50 reserved loge seats are selling for \$2.80 each. The feature is "Marooned" starring Gregory Peck, Richard Crenna and David Janssen.

her engineering responsibility (she's the only female structures engineer at Ventura) to be as involved with her Samoyeds as she'd like. But in past years her talent as a trainer has developed her dogs well enough to create a demand for their services.

They've been featured with such stars as Red Skelton, Jerry Lewis, Tuesday Weld, Eddie Fisher, Art Linkletter, Betty White and the late Ernie Kovacs. You've, no doubt, seen Mrs. Bristol's sammys on such TV series as "Klondike," "Sergeant Preston of the Yukon," and "Lasie."

She even represented the then-new State of Alaska at the Los

Angeles Coliseum during the Democratic National Convention of 1960 when Senator John F. Kennedy made his presidential nomination acceptance speech. Each appearance means a day or so of preparation and at least another day involved with the show itself.

But, doesn't all of this seem like a tremendous amount of work for someone whose career is otherwise directed? "Not at all," says Mrs. Bristol. "It's a great change of pace and I do it because I love the dogs and the excitement of participating with them."

Mrs. Bristol has owned 30 different Samoyeds for the dura-

tion of their lives, has bred all of them herself, raising them from pups. More than half have been AKC champions as well as sled dogs.

She's had her share of problems too, like switching dogs at the last minute when her lead dog cut his foot, or herding five sammys, Santa and his sleigh into a freight elevator for their fourth floor appearance at the downtown Broadway store.

Mrs. Bristol has owned dogs or horses since she was eight years old and frequented the bridal paths of the parks in Boston, where she grew up. "I started loving animals then and just never quit," she acknowledged.



NORTHROP VENTURA'S LLOYD BRISTOL AND 'SAMMYS'
Beautiful Samoyeds are bred and trained for dogsledding and show competition.

Young Robinsons Share Gobblers With The Needy

When the Al Robinson family sits down to Christmas dinner it will feast on turkeys raised specifically for the occasion by Mr. Robinson's young sons.

Mr. Robinson's four sons, Jeff, 15, Mark, 12, Todd, 11, and Kirk, 9, each groomed two turkeys as part of a Ventura County 4-H Club project. They each then kept one and donated one to a needy family.

As well as growing their own turkeys for Thanksgiving and Christmas, the Robinson boys are involved in several 4-H livestock projects.

Jeff, the oldest, has four white Charolais breeding cattle. Mark's project involves 12 breeding sheep. Todd's interest is in chickens. He has 24 Rhode Island Reds and recently won two registered Ostraloops at a 4-H convention.

The youngest son, Kirk, helps with the sheep and is busy in the family truck garden raising vegetables. The quarter-acre garden also finds the boys raising pumpkins, squash and tomatoes for market.

All of the boys have won 4-H awards in the Moorpark Club or at the county level and Jeff, who intends to major in agriculture at UC Davis, has competed at the state level.

The boys keep their livestock on four acres adjacent to the Moorpark home.

Mr. Robinson, head of the industrial Training and Certification office at the Ventura Division, is also a trustee of the Moorpark Union High School District.

Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

Chevrolet, 1969 Chevelle S.S. 396, 350 h.p., 4-spd., p/s, p/b, 4:11 posi., many extras, \$3,200. 213-545-2180. A

Taurus, 1960, German Ford, 2-dr., Model 17M, r/h, \$225. 714-544-5964. A

Pickup Truck, 1959 Ford, auto., V-8, new trans., r/h, \$750. 213-674-2351. A

Chevrolet, 1964, auto., \$850. 213-679-8808. A

Chevrolet, 1966 Caprice, 4-dr., h/top, V-8 327 eng., auto. p/button radio, rear spkr., htr., a/c, p/s, p/b, \$2,300. 213-679-5222. A

Pickup Truck, 1963 Chev. 1/2-ton, V-8, \$650. 213-675-6087. A

Mustang, 1966, a/c, stereo, p/s, V-8, \$1,650. 213-377-3532. A

Dune Buggy, \$1,500. 213-327-6959. A

Dune Buggy, mini T, new clutch & exhaust sys., \$900. 213-672-6952. A

Ford, 1969 Torino GT, air, full power, 8,400 mi., \$2,900. 714-547-0411. A

Buick, 1967 Riviera, full power, AM-FM radio, \$3,300. 213-292-3979. A

Volkswagen, 1957 combination van/bus, \$100. 213-534-1686. A

Dune Buggy, Corvair/Mini T, \$1,650. 714-962-4230. A

Dune Buggy, 1967 VW eng., fiberglass body, top, curtains, tow bar, \$1,500. 213-377-5059. A

Volkswagen, 1966 Fastback, \$1,275. 213-374-6551. A

Triumph, 1968 Spitfire convt., 13,000 mi., \$250 for equity, loan balance \$1,350, \$1,600. 714-847-6714. A

Rambler, 1962, 6-cyl., 2-dr., auto. trans., radio, \$200. 213-676-4464. A

Station Wagon, 1962 Falcon Squire Deluxe, auto. trans., r/h, \$495. 213-671-2776. A

Dune Buggy, Volkswagen, rebilt. eng., tow bar, \$1,045. 213-370-2876. A

Mercury, 1962 Monterey, 4-dr. h/top, p/s, p/b, r/h, \$475. 213-645-6447. A

Station Wagon, 1969 Datsun, 4-spd., a/c, 14,000 mi., \$1,800. 213-630-1844. A

Volkswagen, 1964 squareback Super Variant 1500, body damaged, \$300. 213-673-2741. A

Pickup, 1950 Ford V-8, flat head, \$150. Box 2401. A

Oldsmobile, 1965 98, 4-dr. h/top, p/s, p/b, p/w, a/c, \$1,600. 213-635-4252. A

Buick, 1959 2-dr. h/top, r/h, a/c, p/s, p/b, \$300. Box 2402. A

Chevrolet, 1960 Impala, 2-dr. h/top, \$250. 714-826-2076. A

Mustang, 1966, V-8, r/h, p/s, p/b, full-length console, 17,000 mi., \$1,495. 213-474-1023. A

Oldsmobile, 1958 98, 4-dr. h/top, \$150. 213-759-5717. A

T-Bird, 1963 Landau, full power, fact. air, \$625. 213-679-8076. A

Mercury, 1962 Meteor, 2-dr. sedan, \$275. 213-670-4342. A

International Scout, 1962, 4-whl. drive, r/h, \$700. 213-378-0875, 213-375-4216. A

Mercury, 1962 Comet, 29,000 mi., \$750. 213-363-4916. A

Plymouth, 1968 Custom Suburban, many extras, \$2,900. 213-379-7853. A

Corvair, 1962, stick, 2-dr., \$225. 714-595-3398. A

Ford, 1966 Econoline Supervan Gypsy camper, auto. trans., big 6 eng., stove, sink, ice box, side rm., \$1,800. 213-325-0309. A

Chevrolet, 1953, 2-dr., auto., r/h, \$200. 213-676-6882. A

Chevrolet, 1965 Impala S.S., 2-dr. h/top, min. bid, \$895; Volkswagen, 1967, min. bid, \$1,025; Chrysler, 1964, N. Y., min. bid, \$795; Pontiac, 1968 G.T.O., min. bid, \$2,325. Credit Union, ext. 1117. A

Ford, 1956, 4-dr., V-8, auto. trans., r/h, \$80. 213-672-6188. A

Ford, 1965 Galaxie 500, 2-dr. h/top, p/s, a/c, \$1,000. 213-757-1218. A

MGB, 1967 G.T., wire whls., 26,000 miles, \$2,150. 714-644-2887, 213-329-2926. A

Mercury, 1967 Cougar, \$2,150. Box 2403. A

Ambassador, 1967 h/top, fact. air, 343 cu. in., d/brakes, all power, \$1,750. 213-329-4576. A

Dune Buggy, 1960 shortened Valiant, 10" rims, floor shift, \$115. 213-542-4245. A

Falcon, 1960, 4-dr., recent tune-up, \$300. 213-373-1266. A

Valiant, 1960, 6 cyl., auto., r/h, \$200. 213-326-8033. A

Camper, 10' cabover, Highway Cruiser, self-contained, \$900. 213-676-0573. A

Opel, 1964 Kadett, new eng., \$450. 213-532-9491. A

Triumph, 1965 TR-4, wire whls., r/h, \$1,495. 213-715-9321. A

Household Items For Sale

Bedsread, full size, quilted, Sears, turquoise, \$9. 213-645-7972. B

Household Items For Sale

Refrigerator-Freezer, Hotpoint, 1 yr. old, \$200. 213-542-4226. B

Refrigerator, Frigidaire, white, \$25. 714-897-2648. B

Stove, gas, O'Keefe & Merritt, 36" wide, \$25. 213-679-5506. B

Baker, Broiler & Toaster, Munsey Deluxe, thermostat controlled, \$17.50. 213-326-9107. B

Rollaway Bed, mattress, \$25. 213-672-9449. B

Dresser, Bassett, & crib set w/mattress. \$75. 213-376-4831. B

Rug, 9', round, dark red looped wool w/ fringe, \$40. 213-677-4328. B

Stove, O'Keefe & Merritt, \$50. 213-542-5795. B

Sofa, red & gold, \$160. 213-672-1968. B

Sewing Machine, elec., \$35. 714-524-1531. B

Sofa, Early American, 6', matching chair, just recovered, w/hand-made circular rug, \$100. 213-451-3520. B

Bedroom Set, dbie. bed, vanity, chest of drawers, night stand, mattress & box spring, \$35. 213-831-1745. B

High Chair, \$3. 213-676-3665. B

Refrigerator, 12 cu. ft. Coldspot, single door, \$40. 213-675-6206. B

Bedroom Set, walnut, h/board, chest, lamp, box frame, \$30. 213-635-9944. B

Playpen, wooden w/base & pad, \$12. 213-671-0925. B

Refrigerator, Frigidaire, 9 cu. ft., crosstop freezer, \$50. 213-644-1337. B

Dryer, Norge, 220V/110V, extra lge., 7 yrs. old, \$40. 213-457-9186. B

Cradle, mattress, 6 mos. old, \$15. 213-370-3293. B

Blender, Knapp Monarch, \$10. 213-340-5694. B

Bed, folding roll-a-way, innerspring mattress, twin size, \$35. 213-325-5245. B

Miscellaneous For Sale

Tape Recorder, Cassette type, Panasonic R0-210S, pocket size w/attach., \$70. 213-863-7547. C

Clarinet, York B flat, wood, new leather case, \$70. 213-397-3504. C

Hood, fiberglass, w/scoop & hood pins, \$40. 213-671-7875. C

Juke Box, AMI 200, plays stereo, \$192. 213-676-2142. C

Shell Camper, 1/2, white 6'x8' glassed, \$60. 213-324-9769. C

Motorcycle, 1968 Honda 175 Scrambler, 3,000 mi., \$450. 213-679-4723. C

Wig, 100% human hair, 3/4 length, tawny blonde, \$15. 213-644-3135. C

Golf Clubs, left handed, 8 irons, 3 woods, bag & cart, \$65. 213-324-8784. C

Air Compressor, Craftsman, 1/3 h.p. motor, \$10. 213-378-7642. C

Holster Set, complete hvy. duty police rig for revolver, \$25. 213-962-2867. C

Wiglet, light blonde, 100% human hair, \$12. 213-671-6562. C

Typewriter, L.C. Smith, 10", \$25. 213-754-4820. C

Hobby Horse, Wonderhorse, \$10. 213-321-2674. C

Pup, yellow Labrador retriever, male, AKC, papers, \$100. 213-322-5078. C

Guitar, Gretch Country Gentleman, case, \$395. 213-375-4448. C

Soccer Shoes, Adidas, size 8 1/2, \$5. 213-644-3816. C

Cemetery Lot, double, El Sereno, Inglewood Park, \$950. 213-833-1970. C

Stereo, AM-FM, walnut, portable, all transistor, \$30. 714-529-8082. C

Camper Shell, near new, for pickup truck, half door, \$175. 213-323-1994. C

Poodles, A.K.C., apricot miniature, 6 wks. old, \$125 females, \$150 males. 213-349-4871. C

TV, color, 23", \$100. 213-830-5284. C

Mobile Home, 1967 12'x55' Custom Skyline, bitins, dps., cpts., awning, \$2,800 dn., take over pymts., \$4,400 bal. 213-422-2305. C

Partnership, 1/3 1964 Mooney Super 21, Torrance based, A/P, F.G.P., pitot heat, \$850. 213-830-5537. C

Camera, Reflex, West German Edixa, 35mm, w/135mm lens, case, \$55. 213-323-8797. C

Camera, Kodak Retina IIA w/case, \$40. 213-376-3156. C

Piano, 3 yrs. old, spinet, full keyboard, \$400. 213-324-3690. C

Motorcycle, 1968 Hodaka, 90 cc, \$250. 213-473-5973. C

Tools, 1/4" drive 29-pc. socket set, 3/8" drive 14-pc. socket set, 1/4" drill motor w/ drill press conversion stand, \$30 or sell sep. 213-545-6719. C

VW Bus Parts, rear seat, eng. dr., rear bumper w/trailer hitch, \$15. 213-396-6739. C

Pups, 2 min. Dachshund, fem., 3 1/2 mos. old, h/broken, have shots, \$35 & \$50. 213-255-1233. C

TV, Zenith color, 1970 model, roll around stand, 18" w/A.F.C., fact. warranty 1 1/2 mos. old, \$325. 213-373-1922. C

Motorbike, Batavette, \$125. 213-675-7534. C

Coat, borgana, beige, size 10-12, \$50. 213-784-9339. C

Mini Trail Bike, Honda, helmet, \$225. 213-831-6882. C

Pups, Irish setter, AKC reg., \$200-\$350. 213-376-5904. C

Bicycle, 2 men's 10-spd. Derailuers, Schwinn & Motobecane, \$40 ea. 213-545-5088. C

Ski Boots, lady's, size 6-6 1/2, \$30. 213-673-1133. C

Miscellaneous For Sale

Cats, Siamese male & female, \$15. 714-842-1733. C

Pinball Machine, \$175. 213-644-6733. C

Speaker, University 6201, \$25. 714-897-0994. C

Gyrocopter, Benson, \$1,700. 213-866-5927. C

Stereo, RCA Victor, portable, w/dual spkrs. & stand, \$50. 213-329-4310. C

Bicycle, 2 boy's 20", \$15 ea. 213-326-5979. C

Pressure Cooker, decorator's antique, cast alum., \$6.95, other items. 213-474-5726. C

Banjo, 5-string, Robertson 2063, \$225. 213-372-8618. C

House Trailer, 8'x45' Kit 1957 Golden State 2-bdrm., completely furn., at Yucca Valley, \$1,495. 213-326-6214. C

Lawnmower, hand-type, wooden frame, \$5. 213-347-1175. C

Bicycle, girl's Schwinn Fairlady, w/basket, \$45. 213-675-4239. C

Typewriter, L.C. Smith, 92-character keyboard w/extra eng'g. characters & symbols, \$15. 805-495-7550. C

Sun Shades, alum., custom-fitted, fit 1964-66 Valiant or Dart, \$15. 213-839-3279. C

Corsair Model, gas-powered, by Cox, never used, \$7. 213-377-6193. C

Motorcycle, 1967 Honda, P-50, trail tires, auto. shift, \$85. 213-375-6467. C

Bicycle, boy's 20" AMF Sting Ray, h/brakes, 3-spd. gear stick, \$25. 805-495-5147. C

Billiards Table, 8', 1 yr. old, \$69. 213-755-7166. C

Accordion, Universal bass, amp. hook up, case, never used, Italian import, \$450. 213-676-8138. C

Stole, Russian gray squirrel, med. size, \$69. 213-378-0477. C

Drill Press, w/motor, rollaway stand w/5 drwrs., access., \$100. 213-753-6277. C

Tape Recorder, Pencil, solid state, a.c. only, \$30. 213-823-1788. C

Surfboard, Jacobs roundtail 7'5", \$60. 213-370-4226. C

Go-Cart, 2 h.p., metal frame, \$45. 213-672-4482. C

Jointer-Plane, Craftsman, 6 1/2", never used, \$95. 714-897-5874. C

Cowboy Boots, size 7, \$10. 213-676-7109. C

Boat, 15' glass runabout, swivel seats, 35 hp. Mercury Thunderbolt out/bd. w/elec. start, extras, \$800. 213-324-1908. C

Surfboard, 6'10" Takayama Scorpion, \$70. 213-374-8608. C

Aircraft Radio, Skycrafters, 24 chnl. rec., interphone, transistor power, remote omni., \$295. 213-644-2585. C

Trailer, 15' Aristocrat Lo-Liner, w/w cpts., motorcycle rack, \$1,100. 213-326-3626. C

Belt Massager, 2-spd., used approx. 15 times, \$40. 213-679-5677. C

Pups, 2 male Brittany spaniels, 5 mos. old, AKC, shots, \$75 ea. 213-962-2640. C

Acreage, 5 acres, Antelope Valley, \$59 dn., \$59 mo., no int., \$5,900. 213-378-1026. C

Pop Car, battery operated, \$50. 213-327-8498, 213-321-6237. C

Aircraft Radio, Narco Mk. II, 24-channel rec., whistle stop tun., loc., mkr. bcn., & interphone, \$275. 213-326-9528. C

Movie Set, complete 8mm, incl. camera, Bolex, case, projector, Kodak, access., \$75. 213-377-8731. C

TV, 21" Zenith, \$20. 213-371-4233. C

Motorcycle, Honda 305, extra helmets, sprockets, other parts, \$350. 213-328-7048. C

Motorcycle, 1965 Suzuki, 250cc Hustler X6, \$200. 213-374-3194, 213-545-3884. C

Helmets, 2 arc welder's, \$3 ea. 714-838-7161. C

Surfboard, 9'6", clearboard, redwood stringer, \$50. 213-372-0840. C

Motorcycle, 1966 Honda Super Hawk, 32 hp., 338 cc, \$375. 213-547-4141. C

Squirrel Monkey, 2 yrs. old, w/cage, \$30. 213-830-5543. C

Revolver, .38 Special, box of shells, 4" bbl., \$70. 213-329-2016. C

Great Books & auxiliary reading material, total 77 vols., almost new, by Encyclopedia Britannica, \$250. 213-377-5936. C

Ham Transceiver, Eico 753 fact. wired, mike, 3-element beam, \$125. 714-639-4438. C

Travel Trailer, 35' Kenskill, w/tip-out living rm., 2 yrs. old, unfurn., alum. awning, 1-bdrm., a/c, \$3,800. 213-644-2401. C

Target Bow, Hoyt Pro-Medalist, 41 lbs. w/ sight, 1 doz. matched alum. arrows, \$125. 805-527-6728. C

Bicycle, 5-spd. Sting Ray, \$45. 213-675-6020. C

Ping Pong Table and sets, \$15. 714-821-0397. C

Boat, 1963 31' Chris Craft Cavalier, S.S. radio, sleeps 6, \$8,500. 213-371-1546. C

Piano, upright, bench, \$100. 213-320-3440. C

Stereo, w/AM-FM radio, maple, Silvertone, \$50. 213-329-4894. C

Lot, R-3, Desert Hot Springs, improvements in, 10 min. to Palm Springs, \$4,995. 714-968-5343. C

Home, 3-bdrm., 2 baths, family rm. w/fireplace, bitins, filtered pool, walking distance to main plant, low int., \$32,000. 213-676-9667. C

Acreage, 1 1/5 acre, Desert Moon Ranch Ests., Thousand Palms, \$4,000. Box 2404. C

Trailer, 16' Oasis, sleeps 5, elec. brakes, 110V/12V, propane lights, stove & oven, jacks, \$800. 213-378-2469. C

Film, Kodachrome II, 36 exposures, ASA 25, exp. Sept. 1970, for color slides, \$2.20 roll. 213-295-9997. C

Miscellaneous For Sale

Own-Your-Own-Apt., 2-bdrm., 2 baths, all elec., dps., cpts., patio, pool, party rm., hobby shop, enc. 2-car gar., newly decorated, adults, \$24,000. 213-327-8047. C

Encyclopedia, children's The New Book of Knowledge by Grolier, take over \$10 mo. pymts., extras incl., \$240 balance. 714-778-3916. C

Battery Charger, 6 & 12 volt, Craftsman, \$10. 213-754-1089. C

Cabin, Big Bear City, 2-bdrm., on 50'x100' lot, \$10,500. 213-339-1050. C

Airplane, 1969 Cessna 150 commuter, 500 hrs. total time, Mark 12A, mkr. bcn., \$9,635. 213-324-2992. C

Drum Set, Ludwig Super Classic, 4 drums, 4 cymbals, stool, stands & sticks, \$375. 213-696-3467. C

Guitar, 12-string elec. Diamond, & amplifier, Elk, 50 w., \$310 or sell sep. 213-541-3083. C

Radio, C. B. Johnson 1, messenger, full of crystals, \$85. 213-672-0636. C

Motorcycle, 1967 Honda Super Hawk, extras, \$300. 213-675-2813. C

Home, 3-bdrm., dining rm., patio, paneled det. gar., fenced, 6 min. from Aircraft Div., \$19,500. 213-323-6786. C

Rifle, 243 Sako Forester, hvy. bbl. model, \$150. 213-391-8750. C

Cabin, A frame, in Running Springs, trees, financing avail., \$19,200. 714-635-0853. C

Home, 4-bdrm., 2 baths, ocean view, P.V. Pen., low int., \$47,000. 213-377-1654. C

Wanted to Buy

Trumpet. 213-431-4066. D

Photographic Enlarger, for home darkroom. 213-274-0589. D

Freezer, chest type, 213-322-5136. D

Player Piano. 805-482-7847. D

Pistol, 22 l.r. auto., target-type w/10" sights, High Standard or Smith & Wesson preferred. 213-833-5755. D

Transmission for 1958 to 1962 TR-3 or TR-4 Triumph. 213-376-3539. D

Jaw Chuck, 4 for 9 or 10" bench lathe. 213-326-4670. D

Banjo, 5-string. 213-373-2357. D

Revolvers, old, any caliber, any condition, also parts for guns, barrels, frames, sights, or trade guns. Box 2405. D

Shotgun, 20 ga. pump-type, used & in good condition. 213-532-4184. D

For Trade

Camper-Motorhome, deluxe, self-contained, \$5,000 value, trade for light airplane or boat of equal value. 213-644-3424. E

Free (To Be Given Away)

Pups, black, born Oct. 31. 714-968-1539. F

Rentals Offered

Apt, 2-bdrm., cpts., dps., bitins, Lennox, \$125 mo. 213-673-2248. G

Apt, 2-bdrm., furn., cpts., dps., bitins, lge. pool & patio, closed gar., near El Camino, adults, \$175. 213-329-5986. G

Cabin, Green Valley Lake, \$40 w/end, \$65 wk. 213-320-2002. G

Apt, 2-bdrm., 1 1/2 bath, Laguna Niguel, So. Laguna, no children, club house, swim pool, \$240 mo. 213-323-4900. G

Apt, 2-bdrm., cpts., dps., bitins, garb. disp., soundproofed, closed gar., 2nd floor, \$145 unfurn. to \$165. 213-375-9397, 213-375-2091. G

Apt, 2-bdrm., lower, unfurn., bitins, stove, avail. Jan. 1, no pets, 1 child ok, \$150. 213-676-7423. G

Home, 3-bdrm., 2 baths, cpts., dps., rear gar., lge. fenced bk. yd., S.W. Torrance, avail. Jan. 1, \$250. 213-371-6328. G

Cabins, Idylwild, 1 & 2 bdrm., stream, patio, f/place, \$25-\$35 w/end, \$50-\$80 wk. 213-886-8040. G

House, 2-bdrm., fenced yd., acoustic ceilings, \$150. 213-679-2771. G

Personals

We wish to extend our deepest thanks to all Northrop friends for the flowers & kind expressions of sympathy in the loss of our beloved son. ROBERT & MARY FISHER. L

We would like to express our deepest appreciation to all our friends at Northrop for the flowers & kind & thoughtful expressions of sympathy at the passing of our beloved father. MAX & OLIVER PELLERIN. L

Flying Ski Trip, 9-day round robin to Taos, Vail, Jackson Hole, Sun Valley, Lake Tahoe, share expenses, can accommodate 6 more persons, late Feb. Box 2406. L

For Sale or Trade

Volkswagen, 1968 Squareback, AM-FM radio, under 11,000 mi., \$1,800 or trade for 1965 Mercedes 190-C or 190-DC w/auto. trans. 213-374-2511. M

Rides and Riders

Rides Wanted

8 a.m. — 4:45 p.m.

Inglewood Ave. & 134th St., Hawthorne. Ride needed home. Geri Courtney, Aircraft ext. 1641, 213-644-3957.

Edinger & Springdale, Huntington Beach. Paul Eckroth, Aircraft ext. 1465, 714-846-1858.

Rides Offered

8 a.m. — 4:45 p.m.

Edinger & Springdale, Huntington Beach. Paul Eckroth, Aircraft ext. 1465, 714-846-1858.

For Sale or Trade

Organ, elec. Holiday model, \$350 or trade for color TV, stereo, tape deck. 213-676-1675. M

Optimist Pick Northrop Son For Top Honors

The South Bay Optimist Club has selected Steve Shev to receive their annual Outstanding Student Award for all-around high school achievement.

Steve, 17, was presented the award at a banquet held in the Proud Bird Restaurant. His father, Oscar Shev, an engineer in the Electronics Division's Space Systems section, witnessed the presentation.



Steve Shev

A senior at South Torrance High School, Steve serves on the Student Council and was president of his sophomore class and vice president of his junior class.

He is a member of the school's soccer team, honor society, and has twice been nominated for laurels in leadership and social science.

Steve hopes to enter Stanford University this fall, studying to become a lawyer.

LICENSE RENEWALS OFFERED IN-PLANT

In-plant automobile registrations for 1970 license tabs will be available again this year through special arrangements made by Personnel Activities and the Automobile Club of Southern California.

Open to all employees, the service is slated for lunch periods Dec. 17 and Jan. 7, 14 and 21 at Plant Three; and Dec. 19, Jan. 9, 16 and 23 at Plant One Personnel Activities offices.

Employees leave their 1970 registration cards and checks (payable to NRC) covering the fee one week, then pick up the validated cards and license tabs the following week. There is no charge.

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HAWTHORNE

NORTHROP NEWS

Vol. 27

No. 24

BIG CHRISTMAS PARTY ENTERTAINS 15,000



WAITING FOR GIFTS is an anxious time for any youngster, as this group shows. Each child attending the Shrine Auditorium party received a gift.



RICARDO AGUDELO, 3, the son of Arnulfo Agudelo, is typical of many youngsters who met Santa Claus and received candy cane.



YOUNG PERFORMERS who took part in the entertainment portion of the show pose with one of the favorite decorations.



LORNA COX, left, brought along Robin, Vickie, Christy, James and Michael for the show. The group found the gifts interesting as well as the big stage tree and decorations.

PARTY PHOTOS BY RON McGAFFIN



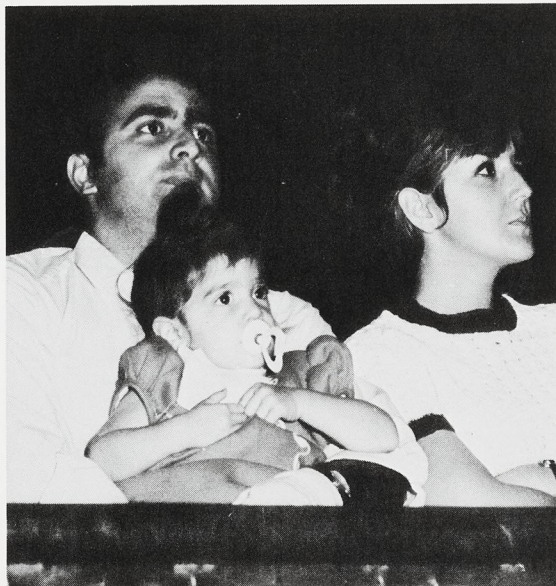
VOLUNTEERS like those above made the party possible.



KRISTIE Cervantes and his father, Robert, receive gift from Santa's helper.



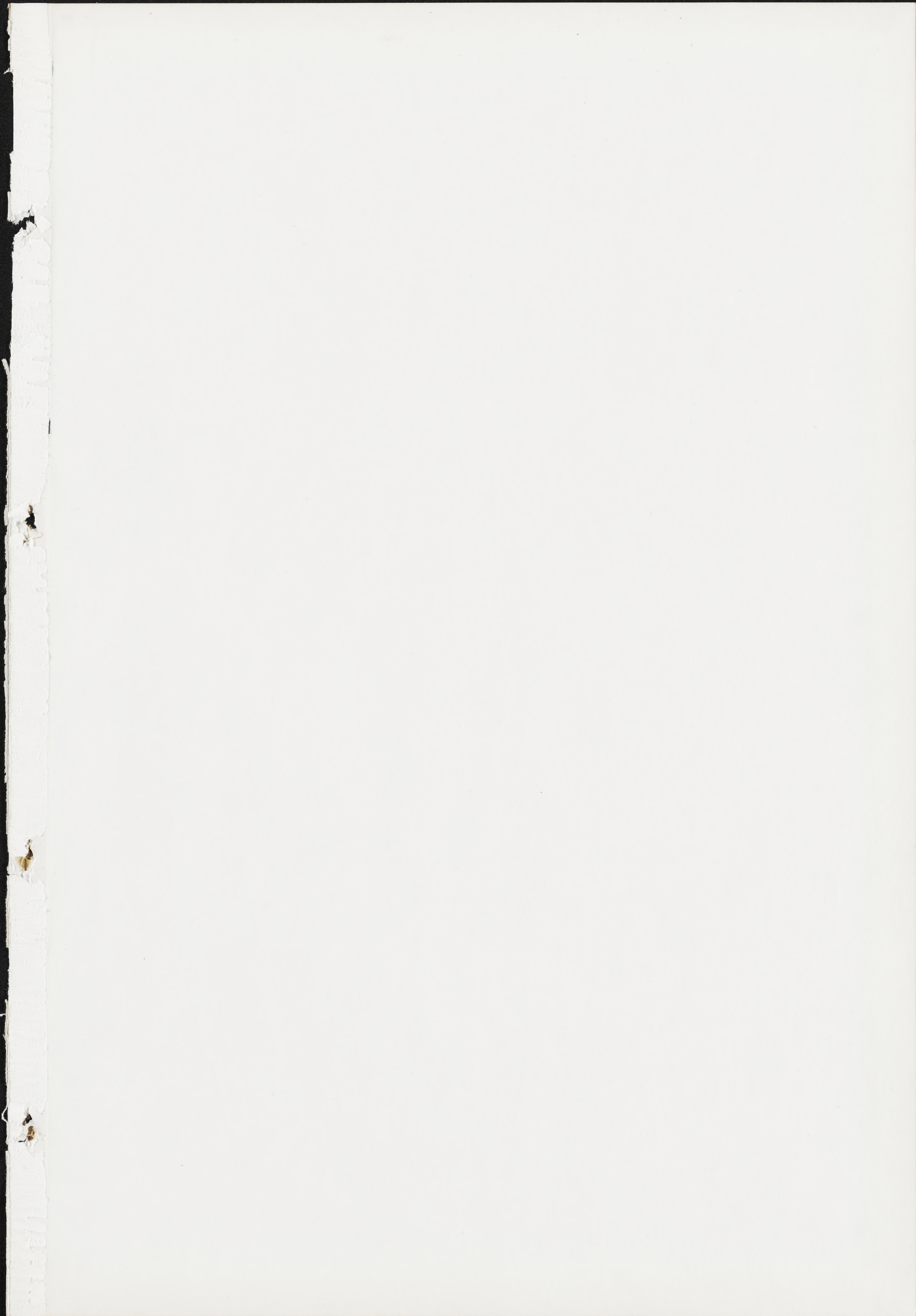
JERRY WEBSTER, his wife, Lee, and Michelle and Allison look over program.



CAMILLE, Marion and Angela Pranzo are interested in the entertainment in progress.



TWO BIG PARTIES come up this weekend for Northrop youngsters, one Saturday for Ventura Division children, one Sunday for Electro-Mechanical sons and daughters. Members of the NRC Art Club at Anaheim, from left, Chuck Felder, Ed Mosher and Bob Peck, paint some of the scenery.



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